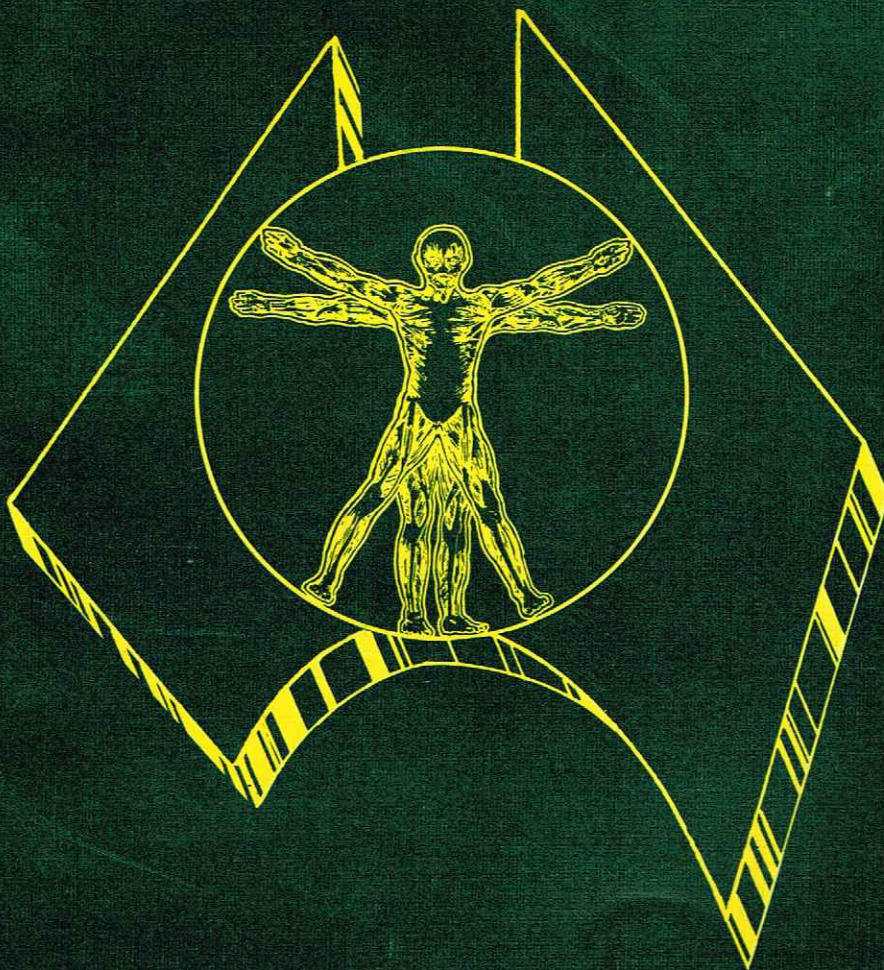


**Australian  
Association of  
Musculoskeletal  
Medicine**

***Bulletin***

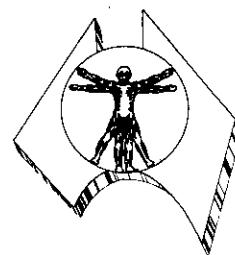


Special Syllabus Issue

Vol. 3 No. 2 September 1987  
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*G. Bylth*  
**Australian  
Association of  
Musculoskeletal  
Medicine**



# Bulletin

Vol.3 No.2

September, 1987

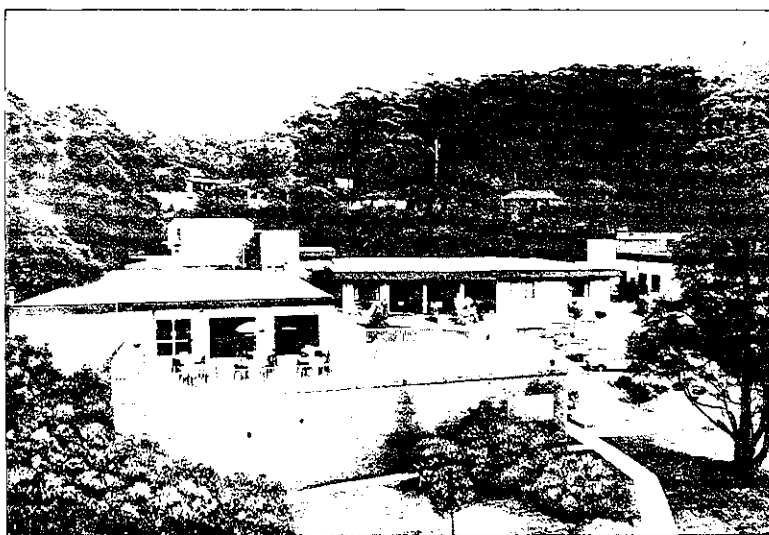
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The A.A.M.M. Bulletin is published by the Australian Association of Musculoskeletal Medicine for medical practitioners interested in the aetiology and management of musculoskeletal disorders. Opinions expressed are those of the authors and not necessarily those of the editor or the Association. Editorial comment may reflect the opinions of the editor alone. Contributions on any relevant topic are welcome for submission to the editor, Dr. Wade King, 131 Marius Street, Tamworth, NSW, 2340, telephone (067) 66 6166, or to any member of the A.A.M.M. Committee.  
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## OCCUPATIONAL HEALTH UNITS PROVIDE SPECIALISED CARE



New South Wales now boasts two specialised occupational health units, dedicated to the acute and post-acute physical rehabilitation of patients suffering from work-related injuries and diseases, sports injuries and other musculoskeletal disorders.

They are -

- **The Illawarra Rehabilitation Centre**, a 63-bed facility at Thirroul, near Wollongong. The Centre is a private hospital registered under the Workers' Compensation Act as an approved institution for medical and vocational rehabilitation for both in-patient and out-patient services.
- **The Bankstown Occupational Health Service**, located in a fully-equipped clinic building at 400 Chapel Road, Bankstown, and operating as an extension of the IRC's services.

*For further information on the services and facilities available please contact the Administrative Director, Mr. Phil King, Illawarra Rehabilitation Centre, 72 Phillip Street, Thirroul, N.S.W. 2515. Tel: (042) 67 2811.*

**IRC** ILLAWARRA  
REHABILITATION  
CENTRE

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# AUSTRALIAN ASSOCIATION OF MUSCULOSKELETAL MEDICINE

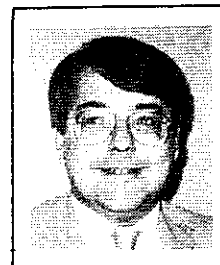
## OFFICE-BEARERS 1987

The following members were elected to office at the annual general meeting in Sydney on 14th November 1986.

### PRESIDENT:

**Dr. Nikolai Bogduk** BSc (Med) (Hons), MB, BS (Hons), PhD,  
Dip Anat, Hon MMTAA.

Faculty of Medicine, University of Newcastle  
Newcastle, NSW., 2308  
telephone (049) 68 5699



### HON. SECRETARY:

**Dr. David Vivian** MB, BS

441 Bay Street, Brighton, Vic., 3186  
telephone (03) 596 7211



### HON. TREASURER:

**Dr. Wade King** MB, BS

131 Marius Street, Tamworth, NSW, 2340  
telephone (067) 66 6166



### COMMITTEE MEMBERS:

<b>Dr. Norm Broadhurst</b>	Adelaide, S.A.	(08) 295 1890
<b>Dr. Phil Funnell</b>	Thirroul, NSW	(042) 67 2811
<b>Dr. Alex Ganora</b>	Thirroul, NSW	(042) 67 2811
<b>Dr. Clive Kenna</b>	Melbourne, Vic.	(03) 568 8166
<b>Dr. Carl Rotkirch</b>	Brisbane, Qld.	(07) 344 1022
<b>Dr. John Varejka</b>	Grenfell, NSW	(063) 43 1211
<b>Dr. Vern Vivian</b>	Point Lonsdale, Vic.	(052) 52 2009

### STATE REPRESENTATIVES:

ACT:	<b>Dr. Goff Nelson</b>	(062) 95 6773
NSW:	<b>Dr. Barry Abeshouse</b> <b>Dr. Howard Rivett</b>	(02) 428 5065 (02) 439 3335
QLD:	<b>Dr. Roger Watson</b> <b>Dr. Gordon Byth</b>	(077) 71 3084 (07) 344 1022
SA:	<b>Dr. Norm Broadhurst</b> <b>Dr. Dick Hodgson</b>	(08) 295 1890 (08) 277 7879
TAS:	<b>Dr. Ron Heddle</b>	(002) 34 5990
VIC:	<b>Dr. Murray Deerbon</b> <b>Dr. David Vivian</b>	(03) 729 4011 (03) 596 7211
WA:	<b>Dr. Harry Moore</b>	(09) 322 5864



# Editorial

In this issue of the *Bulletin* one of the Association's most significant projects comes to fruition. After two years or more of discussions between interested members, several committee meetings and a succession of drafts and re-drafts, the A.A.M.M. Syllabus of Musculoskeletal Medicine is now fit for publication and will be found on pages 18-42.

The idea of a syllabus grew out of the concerns expressed by members over the years for some delineation of the body of knowledge on which practical musculoskeletal medicine is based. In a subtle way, this issue has been fundamental to most if not all of the Association's activities and the need for its resolution was seen as the key to the advancement of the discipline in scientific and academic circles.

In its early stages, what we now call musculoskeletal medicine developed from the interest of some medical practitioners in particular modalities of treatment, especially joint manipulation and various forms of injection therapy. The response of patients with what were considered difficult musculoskeletal problems to these forms of treatment were appreciated and the practitioners using them began to meet to discuss their common interest in what was termed physical medicine. The subject was essentially practical and to a large extent empirical. Obviously it had its bases in anatomy and physiology but in the early days enquiry into these areas commanded less attention than the refinement of treatment techniques and the analysis of results.

What followed is now history. The discipline developed steadily and the number of interested practitioners grew dramatically. Interest in the scientific bases became the principal focus of meetings and although the improvement of patient management is still "the bottom line", it is now sought more through scientific understanding than through empirical refinement of techniques.

Peripheral issues such as the status of practitioners, degrees of expertise and the quality of educational programmes have surfaced over the years and have often generated vigorous debate. Discussion of such matters is healthy and necessary in a developing discipline but the quality of debate has sometimes been undermined by the assumption of the scientific validity of points put forward, rather than genuine inquiry into the matters underlying them. It was often surmised that there was a scientific basis for all clinical phenomena and that this scientific truth could be invoked in support of a proposition simply by describing the clinical phenomena as accurately as possible. In brief, the body of knowledge tended to be taken for granted. Nor surprisingly, matters argued along these lines were often not resolved.

The delineation of the body of scientific knowledge and the particular clinical techniques pertinent to musculoskeletal medicine puts all relevant issues in an entirely different light and will resolve many of the controversies without further discussion. Such questions as what musculoskeletal medicine is and how its concepts relate to the broad spectrum of medical science no longer require speculation. Matters of expertise, the quality of educational programmes and even the delicate matter of professional status are all addressed by the standards implied by the syllabus. The questions now to be asked are how these standards are to be applied and how the results of their application are to be interpreted.

Publication of the syllabus should not be seen as an end of achievement but rather as a beginning. Its contents need to be elaborated and developed into forms suitable for the processes of learning and assessment. This has already begun, both in relation to the general promulgation of relevant knowledge and with a view to formal courses leading to recognised qualifications of expertise.

Further contributions to the syllabus itself will be welcome. In its present form it is considered adequate for its purpose but it is expected to be amended regularly as the discipline develops. It was not intended to be the last word on the subject but it is a significant statement that should have a profound influence on the future direction of musculoskeletal medicine in Australia.

## From The Hon. Secretary's Desk



I look over the Secretary's desk: it is bare. I look out through the window at his one hundred year old oak tree: it is bare. It is winter.

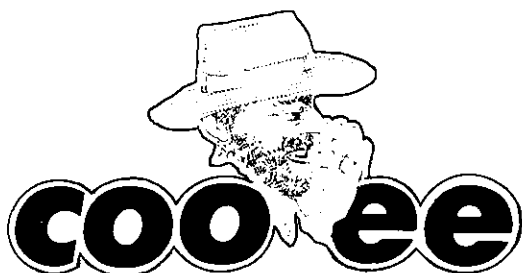
The Secretary is at the snow fields with AAMM members Caroline and Chris. What skills in musculoskeletal hands-on treatment are they perfecting? Is the Secretary extending his research into the hidden mysteries of a furcal nerve? I wonder --- I wonder.

What has taken many hours and years of argument and debate to achieve? What is the end result of the hard endeavour of trial and error? What has been achieved by our President and Committee in one year? These are not trivial questions for the answer is "A Syllabus of Musculoskeletal Medicine". The syllabus has been prepared to provide a means by which interested medical practitioners may extend their knowledge of musculoskeletal medicine and to motivate them to develop specific skills useful for the assessment and management of patients with musculoskeletal problems.

Since the beginning of our association in 1971 constant queries at annual meetings have been: what can we do to set a standard? What or how are we able to discover or research the basic facts that justify our treatment? It is certain that our Past Presidents and Committees will be delighted by the positive progress that has been made. For example, the time and effort expended on producing the "Proforma for Spinal Pain Assessment" has not been wasted. The experience and expertise gained in that has greatly helped in the production of the Association's "Syllabus". The tasks have been set and the work is being done. I wonder no longer.

The Secretary reports that his duties have been relatively light. Political and inter-discipline disputation has been quiet. The Brisbane Annual Conference arrangements have been made. Delegation of duties to committee members will keep things going.

Vern Vivian



*A cheerio call to someone selected at random from the membership barrel*

Spring-time sees the Melbourne members recovering from the surfing injuries of the north, and the knee injuries of the snow, and sees **Chris Holland** back in front of his X-ray screen. Chris is a regular reader of the Cooee section and his rendition of the call is being considered as the vocal emblem of the AAMM.

Chris works in a busy Melbourne radiological centre - Mentone Radiology - and has a developing interest in functional CT scanning of the upper cervical spine.

He is seen on occasions on the beaches of Middle Park with another member who may now read Cooee more avidly, and has indicated a desire for many things, including writing frequent articles for the Bulletin.



Representatives of the Australian College of Rehabilitation Medicine, the Royal Australian College of General Practitioners and the A.A.M.M. met in Sydney as a joint committee on 28th August, 1987, to discuss matters of common interest in musculoskeletal medicine. Educational matters were high on the agenda, with the three bodies exploring means of co-operation in that vital area. In outline, the main decision reached was that one or more accredited postgraduate courses in musculoskeletal medicine should be run in Australia, with an objective assessment of expertise leading to recognised qualifications in the discipline. It was also decided that efforts should be made to increase education in musculoskeletal medicine at undergraduate and early postgraduate levels. The three bodies will co-operate to achieve these aims and no doubt members will be keen to hear of further developments as they occur.

□ □ □

*The Seventeenth Annual Conference is drawing very near and the host city, Brisbane, is in a frenzy of preparation, even to the extent of purging its police force and re-organising its hospitality industry. As most members would be aware, the scientific meeting will be conducted as a joint meeting of the A.A.M.M., the New Zealand Association of Musculoskeletal Medicine and the Australian Spinal Research Society. Full details of the programme will be found on pages 10 and 11.*

□ □ □

The Winter Meeting at Mt. Buller was an unqualified success. Members from several states enjoyed a week together in a relaxed environment, with plenty of time for musculoskeletal exertion on the slopes and for discussion of common interests, with the emerging syllabus being the principal topic. There is little doubt that the Winter Meeting will become an annual event in the Association's calendar.

□ □ □

*Professor Vladimir Janda, of Prague, has been in Australia again recently to speak on topics including muscle imbalance and the central control of muscular functions. A report on a lecture he gave in Adelaide at the invitation of the S.A. Branch of the Association will be found in this issue of the Bulletin.*

□ □ □

**Dr. Hans Schmid**, of Berne, will be visiting Australia again later this year as a guest of the University of Queensland. It is hoped that he may be able to give lectures in other states whilst he is in the country. Members who wish to hear him speak elsewhere should contact their state reps or the Hon. Sec. to discuss arrangements.

□ □ □

**Bunt Burnell**, whose contribution to the AAMM has included being President of the Association in 1977 and 1978, has recently retired from his position as Consultant in Physical Medicine and Rehabilitation at the Queen Elizabeth Hospital, Adelaide. He continues in private practice on a part-time basis and is hoping to enjoy some well-earned leisure.

The talents of **John Piesse** are many and varied. He is now the successful publisher of a pictorial calender entitled "Waterfalls of Australia". The artistic photography resulted from trudging with his camera to many remote and almost inaccessible parts of the country to capture something of the essence of wild water. This year he produced 18,000 calenders and a print run of 27,000 is envisaged for 1988.

□ □ □

Is there no end to the talents of our members? **Norm Broadhurst** has written a book entitled "Drugs, Delights or Deceivers", published by the Lutheran Publishing House. Norm's expertise in this field stems from his scientific background and his wide experience in medical practice.

□ □ □

It is pleasing to see that **Les Koadlow** has recovered after a recent illness and reports that he is feeling better than ever. We will look forward to seeing his smiling countenance and hearing his thoughtful contributions at meetings again.

□ □ □

This issue of the Bulletin was to contain an up-to-date membership list. This has not proved possible, due mainly to the inclusion of the syllabus but also due to the large number of changes to the list as new members joined and some former members re-joined after the recent subscription reminder. It is hoped to include the current membership list in the next issue.

□ □ □

Whilst on the topic of subscriptions, the Treasurer would like to remind any who have not paid yet that subs are now overdue for 1987 and to ensure receipt of the next Bulletin a cheque for \$45 should be sent very soon.

□ □ □

**Carl Rotkirch** has been on sabbatical leave recently, visiting his native Finland to experience the joys of invigoratingly cold weather and real venison. He also undertook further studies at the Department of Physical Medicine in Helsinki and was able to visit two rehabilitation centres in southern Finland, one specialising in musculoskeletal medicine and the other in sports medicine.

□ □ □

Most members will know by now that the President has emigrated from Joh's Country and is now a senior lecturer in the Faculty of Medicine at the University of Newcastle. His new address will be found on the office-bearers list on page 3.







## MEETINGS, CONFERENCES AND COURSES

### LOCAL AAMM MEETINGS

Regular meetings, practical sessions and courses are conducted in numerous centres around Australia by state branches, local groups and individual members of the Association. These activities are mainly for the benefit of members living in a particular area and they will generally be advised by letter or by local notices of dates, times and venues. Anyone who is not receiving information about local activities, or who would like more details about what is going on, should contact one of the local organisers listed below.

In **Adelaide**, Dr. Norm Broadhurst, telephone (08) 295 1890.

In **Ballarat**, Dr. Jim Rose on (053) 35 7366.

In **Brisbane**, Dr. Carl Rotkirch on (07) 344 1022.

In **Canberra**, Dr. Goff Nelson on (062) 95 6773.

In **Hobart**, Dr. Ron Heddle on (002) 34 5990.

In **Melbourne** and **Geelong**, Dr. Bruce Kinloch on (03) 420 5313 and Dr. David Vivian on (03) 596 7211.

In **Perth**, Dr. Harry Moore on (09) 322 5864.

In **Sydney**, Dr. Conrad Winer on (02) 27 8926.

In **Tamworth**, Dr. Wade King on (067) 66 6166.

In **Toowoomba**, Dr. Jeff Phillips on (076) 38 4800.

In **Townsville**, Dr. Roger Watson on (077) 71 3084.

In **Wollongong**, Dr. Alex Ganora on (042) 67 2811.

Those who live in other areas and who would like to organise or participate in local meetings should contact one of their state representatives, who can arrange publicity and other assistance from the resources of the Association.

### ANNUAL CONFERENCE

The seventeenth annual conference of the Australian Association of Musculoskeletal Medicine will be held as a combined meeting of the A.A.M.M., the New Zealand Association of Musculoskeletal Medicine and the Australian Spinal Research Society in **Brisbane** from Friday 23rd to Sunday 25th October, 1987.

The conference will be preceded by a practical workshop on the clinical assessment of the patient with spinal pain.

Full details will be found in this issue.

## OTHER AUSTRALIAN MEETINGS

Numerous meetings on topics of relevance to musculoskeletal medicine are held throughout Australia by groups allied to the A.A.M.M. Members are specifically invited to attend many of these and they are advertised in the Bulletin on a reciprocal basis. Some of those coming up include the following.

The Manipulative Therapists Association of Australia is conducting its Fifth Biennial National Conference at the Regent Hotel, **Melbourne**, from 25th to 28th November, 1987. Further information about this important conference can be obtained from A.J. Grace, P.O. Box 58, Warrnambool, Victoria, 3280, telephone (055) 62 6777.

The Department of Biological Sciences and the Sport Sciences and Research Centre of Cumberland College of Health Sciences is presenting the Sixth Biennial Conference on "Muscle and Nerve Factors Affecting Motor Performance" to be held at Cumberland College of Health Sciences, **Sydney**, on October 14, 15, 16 and 17, 1987. Registration fee is \$175 and details are available from Mrs Doreen Cashel, Department of Biological Sciences Cumberland College of Health Sciences, PO Box 170, Lidcome 2141.

The Australian Sports Medicine Federation National Scientific Conference "Controversial Issues in Sports Medicine" will be held in **Adelaide** October 29 to November 1, 1987 at the Hilton International Hotel, Victoria Square, Adelaide. Registration forms and details available from SAPMEA, GPO Box 498 Adelaide, 5001 (telephone 08-2320813).

Dr. Loren Rex, M.D.D.O., will be conducting courses on muscle energy techniques in **Sydney** on November 27-29 and December 11-13, 1987. These courses will provide opportunities to improve palpation skills and mechanical assessment of musculoskeletal dysfunction and teach general and specific mobilisations using the patients' own muscle activity. The courses will be held at the Reading Room, Holme Building, Sydney University. There will be a limit of fifty participants for each course. Early registration is recommended. Cost is \$370 and cheques should be made payable to "URSA AUSTRALIA". For further information contact Jenny Brackenreg, Suite 5/1 Strathfield Plaza, Office Tower, Strathfield 2134, telephone: (02)782 698.

## MEETINGS OVERSEAS

The Tenth Congress of the International Federation of Physical Medicine and Rehabilitation will be held at the Sheraton Centre Hotel, **Toronto**, Ontario, Canada, from 10th to 14th April, 1988. The theme of the conference is "Rehabilitation: quality assured". Plenary sessions, special interest seminars, poster sessions, scientific institution visits, workshops and an outstanding social programme are planned. Details can be obtained from The Secretary, Xth Congress, International Federation of Physical Medicine and Rehabilitation, 545 Jarvis Street, Toronto, Ontario, Canada, M4Y 2H8.

The next tri-ennial congress of F.I.M.M. (the International Federation of Manual Medicine, with which the A.A.M.M. is affiliated) will take place in **London** from 18th to 22nd September, 1989. Any enquiries at this stage should be addressed to Dr. John Paterson, Honorary Secretary of B.A.M.M., the host association, at 14 Wimpole Street, London, W1M 7AB, England.

The Institute of Orthopaedic Medicine Spring 1988 Meeting at **Bath**, on "Lesions of the Cervical Spine" to be held on Saturday 30th April 1988. Keynote speaker will be Dr Karel Lewit (Czechoslovakia), author of "Manipulative Therapy in Rehabilitation of the Motor System". Information can be obtained through the Tourist Information Centre, Abbey Churchyard, Bath, Avon, England.



**THE 17th ANNUAL SCIENTIFIC MEETING  
OF THE  
AUSTRALIAN ASSOCIATION OF MUSCULOSKELETAL MEDICINE**  
will be a combined meeting with the  
**NEW ZEALAND ASSOCIATION OF MUSCULOSKELETAL MEDICINE**  
and the  
**AUSTRALIAN SPINAL RESEARCH SOCIETY**  
to be held at the  
**City Hall, BRISBANE**  
on  
**22nd-25th October, 1987**

**THEME: "THE BIOLOGY OF THE LUMBAR DISC"**

**SCIENTIFIC PROGRAMME**

**FRIDAY, 23rd OCTOBER:**

12.30pm - 2.00pm Lunch (City Hall)  
2.00pm - 3.00pm Free Papers and Poster Display of Syllabus for Musculoskeletal Medicine  
3.00pm - 3.30pm Presentation of Syllabus  
3.30pm - 4.00pm Afternoon Tea  
4.00pm - 6.00pm Annual General Meeting of AAMM

**SATURDAY, 24th OCTOBER:**

9.00am - 9.05am Opening Address  
9.05am - 9.45am **Structure and Development of the Disc.** Dr. J. Taylor.  
9.45am - 10.15am **Basic Biochemistry.** Dr. P. Ghosh.  
10.15am - 10.30am **Basic Biomechanics.** Miss J. Macintosh.  
10.30am - 11.00am Morning Tea  
11.00am - 11.30am **Movements of the Lumbar Spine.** Dr. M. Percy.  
11.30am - 12.00pm Discussion.  
12.30pm - 2.00pm Lunch  
2.00pm - 2.30pm **Biochemistry of the Disc: Heredity and Ageing.** Dr. P. Ghosh.  
2.30pm - 3.00pm **Structural and Mechanical Changes with Age.** Professor L. Twomey.  
3.00pm - 3.30pm Discussion.  
3.30pm - 4.00pm Afternoon Tea  
4.00pm - 4.30pm **Pathology and Disc Pain.** Dr. N. Bogduk.  
4.30pm - 5.30pm Discussion

**SUNDAY, 25th OCTOBER:**

9.00am - 9.30am **Radiology and MR of the Disc.** Dr. P. Kitchener.  
9.30am - 10.00am **Surgical Aspects.** Dr. G. Weisz.  
10.00am - 10.30am Discussion.  
10.30am - 11.00am Morning Tea.  
11.00am - 11.30am **Conservative Therapy of Painful Lumbar Discs.** Miss G. Jull  
11.30am - 12.00pm **Complications of Manipulation.** Mr. A. Terret.  
12.00pm - 1.00pm Discussion

**THE ANNUAL GENERAL MEETING  
OF THE  
AUSTRALIAN ASSOCIATION OF MUSCULOSKELETAL MEDICINE**

will be held at 4.00pm on Friday, 23rd October, 1987, in the City Hall, Brisbane.

All members of the Association are urged to attend.

- AGENDA:**
1. Apologies
  2. Minutes of 1986 Annual General Meeting
  3. Business arising from this 1986 meeting
  4. Reports - President
    - Secretary
    - Treasurer
    - The Bulletin
  5. The Constitution
  6. The tax status of the AAMM
  7. Future meetings
  8. Elections
  9. General Business
    - FIMM business
    - Future speakers
    - Scholarships

**PRE-CONFERENCE WORKSHOP**

**THURSDAY, 22nd OCTOBER, 9.00am - 4.30pm and FRIDAY, 23rd OCTOBER, 9.00am - 12.30pm**

**"Clinical Assessment of the Patient with Spinal Pain"**

(limited to 30 persons)

Venue: CWA Hall, 71 Gregory Terrace, Brisbane

This practical workshop of one and a half days' duration is designed for medical practitioners wishing to develop their skills in the clinical assessment of patients with spinal pain. The material to be covered will include traditional methods of examination and basic skills but will extend to segmental examination and other pertinent manual techniques.

**SOCIAL PROGRAMME**

**FRIDAY, 23rd OCTOBER: Cocktail Reception, 7.30pm, School of Arts, Ann St., Brisbane**

**SATURDAY, 24th OCTOBER: Conference Dinner, 7.30pm, Brisbane Room, City Hall**

For overseas and interstate visitors, a post-conference Coach Tour is available and can be arranged for a cost of \$500 per person for a 5 day trip. Interested parties are invited to indicate their interest on the registration form.

No formal programme has been arranged for accompanying persons, but advice and suggestions in this regard can be obtained by writing to Dr. Rotkirch.

**ACCOMMODATION**

Block reservations for the Conference have been made with the **Gateway Inn**, North Quay, Brisbane, telephone (07) 221 0211, and with the **Brisbane Hilton**, Queen Street Mall, telephone (07) 231 3131. Individuals are requested to make their own reservations as soon as possible.

**ENQUIRIES**

Dr Carl Rotkirch

McCullough Centre

259 McCullough Street

Sunnybank, Queensland 4109 telephone (07) 344 1022



# THE RELIABILITY OF DIAGNOSIS

**Nikolai Bogduk**

Faculty of Medicine  
University of Newcastle

In technical terms, the reliability of any diagnostic procedure, be it a physical manoeuvre or a laboratory or radiological investigation, can be quantified in terms of its sensitivity and specificity.

Sensitivity is a measure of how frequently a test detects a condition when that condition is known (by other means) to be present; and can be expressed as a percentage score. A sensitivity of  $N\%$  means that the test will correctly detect the presence of a condition in  $N$  cases out of every 100 with the condition; but will fail to detect  $100-N$ .

Specificity is a measure of how well a test discriminates between a particular condition and others that can mimic it; and is also expressed as a percentage score. A specificity of  $N\%$  means that the sought-for condition is present in  $N$  cases out of every 100 in which the test is positive; while in  $100-N$  cases the test is positive because of some other cause.

Clearly, the ideal test is one with a sensitivity of 100% and a specificity of 100%; it detects the condition whenever it is present, and is positive only in the presence of that condition and that condition only. However, rarely, if at all, does any test in physical medicine achieve this ideal. Every test is limited in either sensitivity or specificity, or both.

If a test is very sensitive, it can be next to useless if it has a poor specificity. Such a test may detect the presence of a condition very well but is liable to be positive for reasons other than the sought-for condition. Its usefulness is hampered by a high incidence of false-positive results.

Conversely, a test may be specific but not sensitive. Such a test yields no false-positive results but fails to detect all cases in which the sought-for condition is present. It is therefore hampered by a high incidence of false-negative results.

The value of quantifying sensitivity and specificity is that a numerical measure of the reliability of a test can be obtained. The reliability is the combined measure of sensitivity and specificity, and the reliability of different tests can be compared by comparing their respective measures of sensitivity and specificity.

Sensitivity can be determined by performing the test, single-blind, on a series of patients known to have a condition or abnormality that the test is designed to detect. Specificity is determined by performing the test on a series of patients with a variety of disorders each of which could cause the test to be positive. The numerical measure of sensitivity is derived by dividing the number of times the test is correctly positive by the total number of times it should have been positive. Specificity is measured by dividing the number of correct positive results by the total number of times the test is positive for any reason. To illustrate these processes, the following account is a summary of one of the most exhaustive of such studies in physical medicine: Knutsson's study of the diagnosis of lumbar nerve root compression<sup>4</sup>.

Knutsson studied some 180 patients who underwent surgery for suspected lumbar disc herniation and he sought to determine the accuracy of clinical neurological examination, myelography and electromyography as means for making the diagnosis of nerve root compression due to disc herniation. The operative findings served as the absolute control, or independent variable. The presence or absence of disc herniation (or other conditions) was defined on the basis of the operative findings.

Although Knutsson expressed his data more exhaustively and in greater detail, they are summarised, to suit the present theme, in Tables 1 to 3. Table 1 shows that the sensitivity of clinical neurological examination for the diagnosis of lumbar disc herniation was 91%. Knutsson actually reported a more modest initial figure of about 77% but this referred to the

**TABLE 1**

**SENSITIVITY AND SPECIFICITY OF CLINICAL-NEUROLOGICAL EXAMINATION  
IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**  
(derived from Knutsson<sup>4</sup>)

		<b>TEST FINDINGS</b>		
		Positive	Negative	
<b>OPERATIVE FINDINGS</b>	positive	147	14	SENSITIVITY = 147/161 = 91%
	negative	16*	4	
		SPECIFICITY = 147/163 = 90%		

\* : test positive because of osteophytes in 4 cases; varices in 5 cases; presumably spinal stenosis in 2 cases; and for undetermined reasons in 5 cases.

**TABLE 2**

**SENSITIVITY AND SPECIFICITY OF MYELOGRAPHY  
IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**  
(derived from Knutsson<sup>4</sup>)

		<b>TEST FINDINGS</b>		
		Positive	Negative	
<b>OPERATIVE FINDINGS</b>	positive	138	22	SENSITIVITY = 138/160 = 86%
	negative	9*	9	
		SPECIFICITY = 138/147 = 94%		

\* : test positive because of osteophytes in 6 cases; varices in 1 case; and presumably spinal stenosis in 2 cases.

**TABLE 3**  
**SENSITIVITY AND SPECIFICITY OF ELECTROMYOGRAPHY**  
**IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**  
 (derived from Knutsson<sup>4</sup>)

		<b>TEST FINDINGS</b>		
		Positive	Negative	
<b>OPERATIVE FINDINGS</b>	positive	148	13	SENSITIVITY = 148/161 = 92%
	negative	13*	6	
		SPECIFICITY = 148/161 = 92%		

\* : test positive because of osteophytes in 5 cases; varices in 3 cases; presumably spinal stenosis in 2 cases; and for undetermined reasons in 3 cases.

**TABLE 4**  
**SENSITIVITY AND SPECIFICITY OF NEUROLOGICAL SIGNS**  
**IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**  
 (derived from Hakelius and Hindmarsh<sup>2</sup>)

<b>WEAK OR ABSENT FUNCTION</b>	<b>OPERATIVE FINDINGS</b>		<b>SPECIFICITY</b>
	disc herniation	other condition or normal	
patellar reflex	113	37	75%
Achilles reflex	761	190	80%
extensor hallucis	541	148	78%
dorsal extensors	287	94	75%
triceps	85	25	77%

number of cases correctly diagnosed for both presence and segmental location. In a further 14% the clinical signs were positive and were due to a disc herniation but at an unsuspected level, owing to anomalies of nerve roots and sequestration of disc fragments. The specificity of clinical neurological examination was 90%. In only 16 out of 161 cases was a positive examination not due to disc herniation. The extraneous causes were osteophytes, epidural varices and sundry undetermined causes.

The sensitivity of myelography was 86% and its specificity was 95%. Again, Knutsson reported a more modest figure for "correct" diagnosis: 76%. A further 10% of myelograms yielded initially "misleading" information but the abnormalities eventually were found to be due to disc herniation. Positive myelograms in patients without disc herniations were due to osteophytes, varices and other causes of spinal stenosis. The lesser sensitivity of myelography reflects the fact that while clinical signs may be positive if nerve roots are compressed by small medially placed disc herniations, or herniations far laterally in the intervertebral foramen, myelography (of the sort available to Knutsson) may fail to detect such lesions.

As shown in Table 3, electromyography has both a high sensitivity and a high specificity for disc herniations, and a similar source of false positive observations.

In one respect, Knutsson's study can be taken to indicate a high reliability of clinical diagnosis, myelography and electromyography in the diagnosis of disc herniation. Some insight, or suspicion, however, needs to be raised and this is that the population studied may have been a biased one. The control used was operative findings and it seems unlikely that patients would have undergone surgery for disc herniation unless there was, *ab initio*, a strong suspicion that disc herniation would be present. What the study did not include was a large sample of patients without disc herniation, in whom the various tests may have been positive, thereby reducing the actual scores of specificity. In other words, although clinical examination, myelography, and electromyography may appear to be very reliable in a population very likely to have disc herniation, these tests may have a greater difficulty distinguishing disc herniation from other causes in a more heterogeneous population. Indeed, the results of other studies suggest that this is so.

In a recent study, Kosteljanetz et al<sup>5</sup> undertook surgery on 100 patients on the basis of clinical features alone. They found that clinical features suggestive of a disc herniation correlated with the presence of a herniation in only 58% of their cases. Of the remainder, the clinical features could be ascribed, in 24% of cases, to conditions like nerve compression by ligamentum flavum, osteophytes, varices, fibrosis and spondylolisthesis, but in a final 18% of cases, no evidence of root compression was found. From this data, the sensitivity of clinical examination appears to be 100% (for no case of disc herniation were missed). However, in comparison to the results of Knutsson<sup>4</sup>, the specificity of clinical examination for disc herniation is only 58%. Moreover, there is an 18% false positive rate for which there seem to be causes not even remotely resembling disc herniation at operation.

Likewise, Hakelius and Hindmarsh<sup>2</sup> analysed the operative findings of 1,986 patients presenting with various "classical" neurological signs of nerve root compression. Unfortunately, insufficient data were reported to allow calculation of the sensitivity of every sign, but specificity could be calculated (Table 4). In 75-80% of cases a positive sign was proven to be associated with disc herniation, but in the remainder the sign was positive because of osteophytes, varices, root fibrosis or thickened ligamentum flavum, and in half or more of the remainder, no cause was determined.

With respect to the Lasegue sign, adequate data were provided to allow calculation of both sensitivity and specificity (Table 5). This test correctly detected disc herniations in 96% of cases in which herniation was present, but its specificity was only 77%, i.e. in 23% of cases, Lasegue's sign was positive because of conditions other than disc herniation. These included osteophytes, thickened ligamentum flavum, varices and adhesions in 12%, and no detectable cause in 11%. The revelation here is that 1 in 10 cases of positive Lasegue's sign have no detectable pathology at operation.

With respect to electromyography, other studies<sup>6</sup> have shown that abnormalities indicative of root compression more often (86%) correlate with causes such as osteophytes or displaced zygapophyseal joints rather than disc herniation, and these data strongly question the specificity of electromyography as determined from Knutsson's data.



**TABLE 5**

**SENSITIVITY AND SPECIFICITY OF LASEGUE'S SIGN**

**IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**

(derived from Hakelius and Hindmarsh<sup>2</sup>)

**TEST FINDINGS**

	TEST FINDINGS		
	Positive	Negative	
<b>OPERATIVE FINDINGS</b>	positive	1411	SENSITIVITY = 1411/1487 = 96%
	negative	422	
SPECIFICITY = 1411/1833 = 77%			

**TABLE 6**

**SENSITIVITY AND SPECIFICITY OF MYELOGRAPHY**

**IN THE DIAGNOSIS OF LUMBAR DISC HERNIATION**

(derived from the data of Espersen et al<sup>1</sup>)

**TEST FINDINGS**

	TEST FINDINGS		
	Positive	Negative	
<b>OPERATIVE FINDINGS</b>	positive	53	SENSITIVITY = 53/55 = 96%
	negative	35	
SPECIFICITY = 53/88 = 60%			

The incidence of abnormal myelograms, suggestive of disc herniation, in asymptomatic patients is 24%<sup>3</sup>, and some studies put it as high as 50%<sup>8</sup>. Doubt, therefore, can be raised about the validity of an abnormal finding in a symptomatic patient. Is the demonstrated abnormality relevant to the patient's complaint, or is it an example of the asymptomatic protrusions "normally" seen in asymptomatic patients? Furthermore, others<sup>1</sup> who have studied the accuracy of myelography found a sensitivity of 96%, but a specificity of only 60% (Table 6). This confirms the sensitivity as determined by Knutsson<sup>4</sup>, but challenges the measure of specificity determined from his data.

However, it is not the intention of this paper to pursue further the absolute measure of the reliability of diagnosis of lumbar disc herniation. Rather, these various studies have been invoked only to illustrate the fact that certain tests used in physical medicine have been evaluated and their reliability has been measured. What is conspicuous, however, is that the only studies of this nature that have been undertaken, have all addressed lumbar disc herniation and its diagnosis. Other conditions and other tests have not been evaluated.

It becomes pertinent to ask of the other tests in physical medicine, particularly those popularised in "alternative" or "avant garde" practice: what is their reliability?; what proof is there that they do what they're supposed to do?

The absence of satisfactory answers to questions like these is what makes physical medicine a disputed field, and one questioned and maligned by some outside it. For too long has physical medicine been practised as an (almost mystical) art, without sufficient responsibility exercised in validating its practices. Its reputation has tended to rest solely on the assertions of its most vocal, prominent, and frequently political, leaders.

Consequently, one of the roles that research can play in the immediate future is to question the accuracy of tests, routines and rituals in examination, and to determine the sensitivity and specificity of each manoeuvre. In education, undergraduates, and postgraduates attending seminars on new techniques, rather than blindly adopting what is taught with some form of "cargo cult" mentality, should ask - "what is the reliability of that technique; how was its sensitivity and specificity determined?"

**Postscript:** This article was adapted from a lecture delivered in 1986. The object was to illustrate the concepts of specificity and sensitivity. As such, the article represents one of the first "Resource Papers" pertinent to the Syllabus in Musculoskeletal Medicine. To exemplify the educational process intended by the Syllabus, aspiring candidates would be required to follow the theme in this article and to compose an extended version, using data published since the time this paper was originally prepared, and extending its scope to incorporate physical tests relating to other regions of the body.

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# **A SYLLABUS OF MUSCULOSKELETAL MEDICINE**

**prepared by the committee of  
the Australian Association of Musculoskeletal Medicine**

**1987**

## **PREFACE**

Musculoskeletal medicine is that branch of medical science concerned with the functions and disorders of the musculoskeletal system, including muscles, aponeuroses, ligaments, joints and bones of the axial and appendicular skeletons and those parts of the nervous system associated with them.

The objectives of this syllabus are designed to outline the body of knowledge necessary for medical practitioners wishing to achieve expertise in the management of musculoskeletal disorders:

- (i) which are not serviced or are inadequately serviced by established medical specialties such as Rheumatology and Orthopaedic Surgery, or
- (ii) which may benefit from the use of diagnostic or therapeutic techniques not usually provided by these specialties, or
- (iii) which may benefit from techniques not readily available from such specialists but which are academically and practically within the capacity of suitably trained medical practitioners.

The syllabus has been prepared to provide a means by which interested medical practitioners may extend their knowledge of musculoskeletal medicine and to motivate them to develop specific skills useful for the assessment and management of patients with musculoskeletal problems. Working through the syllabus should provide an educational experience which helps practitioners to identify their strengths and weaknesses in this field, initially by self-assessment and perhaps later by an objective assessment of their competence.

To this end, behaviours associated with competence may be considered in three domains, termed cognitive, affective and psychomotor.

The cognitive domain includes firstly the large and important category of knowledge, which must always rank highly in any field of medicine. Secondly, the cognitive domain includes the intellectual skills and abilities which can be described as comprehension, application, analysis, synthesis and evaluation.

The affective domain is concerned with behaviour, including attitudes, interests, values, emotional sets and biases and the individual's philosophies of life. The practitioner should have appropriate attitudes towards patients and should relate effectively to other health professionals, so that a cohesive, co-operative working relationship can exist within the health care team. The practitioner should also exhibit a sense of responsibility both to the medical profession and to the community at large. He should demonstrate interest in professional, educational and research organisations which aim to improve the health of the community (such as the A.A.M.M.).

The psychomotor domain deals with perceptual skills and motor skills requiring neuromuscular co-ordination. Such skills are essential for the processes of patient assessment and management and the degree of their development is proportional to the practitioner's level of practical competence.

The objectives of the syllabus have been set out as clauses introduced by transitive verbs such as "to understand", "describes", "demonstrates", "evaluates", "justifies", etc. These verbs signify the requirements for satisfaction of each objective. For example, if a clause begins "to understand", a practitioner working through the syllabus should endeavour to understand the matters forming the object of that verb; when he can, he will have satisfied that particular objective. If the introductory verb is "describes" or "demonstrates" he should be able to perform those functions to the satisfaction of an informed listener or observer.

Many of the objectives, such as those relating to the basic sciences, are covered by conventional undergraduate curricula and could be readily satisfied by revising undergraduate knowledge. However, other objectives relate to material not usually addressed in undergraduate courses. These are set out to supplement the education in musculoskeletal sciences which undergraduates receive, and which is generally deficient for practical purposes.

In general, the standard of knowledge required by these objectives is not substantially different from that which would be expected of a good undergraduate student were all of the objectives present in an undergraduate curriculum. In this respect, they are not designed to define superior, specialist-level knowledge, but to define requirements for competence in a neglected field of medical education and to guide medical practitioners wishing to extend their knowledge in this field.

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## **A. BASIC SCIENCES**

### **A.1 ANATOMY**

#### **General Objective**

To attain a knowledge of anatomy appropriate and sufficient to:

- i) comprehend and describe the normal functions of the muscles and joints of the axial and appendicular skeletons, and the function of the nervous system as it pertains to musculoskeletal function;

- ii) comprehend the aberrations of function of the musculoskeletal system;
- iii) understand the anatomical basis of techniques used to investigate and manage musculoskeletal complaints;
- iv) critically evaluate established and new theories on the pathogenesis, mechanisms and management of musculoskeletal complaints.

### **Specific Objectives**

- A.1.1 Describes the structure of the bones, joints and bursae of the axial and appendicular skeletons in a detail sufficient to satisfy specific objectives A.1.2, A.1.4 and A.1.5.
- A.1.2 Describes the topographical disposition, attachments and actions of every muscle of the axial and appendicular skeletons in a detail sufficient to satisfy specific objectives A.1.3, A.1.4 and A.1.5.
- A.1.3 Describes the active and passive, physiological and accessory movements of every joint of the axial and appendicular skeletons.
- A.1.4 Describes the forces acting on every joint during its movements. This should include a capacity to analyse the forces exerted by the muscles acting on the joint, and a capacity to analyse the forces exerted on the joint during recreational and occupational activities.
- A.1.5 Describes the factors that normally limit the movements of every joint and factors that may affect the nature and quality of its movements.
- A.1.6 Demonstrates and recognises the features covered by specific objectives A.1.1 - A.1.5 in living subjects and on radiographs, CT scans and magnetic resonance images.
- A.1.7 Describes the biochemistry, microstructure and biomechanics of collagen, elastin, cartilage and the intervertebral disc in sufficient detail to satisfy specific objective A.1.5.
- A.1.8 Explains the anatomical and physiological basis of hysteresis, creep and stress-strain curves for collagen and ligaments, and shows a capacity to relate these phenomena to clinical situations and ergonomics.
- A.1.9 Describes the structure and distribution of entheses.
- A.1.10 States the peripheral and segmental nerve supply of every muscle and joint covered by specific objectives A.1.1 and A.1.2.
- A.1.11 Describes and demonstrates the course and distribution of the peripheral and autonomic nerves in a detail appropriate to:
  - A.1.11.1 the interpretation of musculoskeletal complaints;
  - A.1.11.2 the comprehension of investigations involving these nerves as they pertain to musculoskeletal complaints;
  - A.1.11.3 the safe execution of diagnostic and therapeutic procedures that may involve these nerves directly or inadvertently.
- A.1.12 Describes the course and relations of the vertebral artery and the effects on this vessel of active and passive movements of the cervical vertebral column and head.



- A.1.13 Describes the disposition and attachments of all the structures within the vertebral canal, and the effects on these structures of spinal movements.
- A.1.14 Describes the general structure and disposition of the spinal cord and the transverse and longitudinal disposition within it of the white and grey matter, the posterior columns and the reticulospinal, spinothalamic and pyramidal tracts.
- A.1.15 Describes the structure and functional specialisation of the spinal grey matter in a detail appropriate to the satisfaction of specific objective A.1.14.
- A.1.16 Describes the spinal cord circuitry involved in:
  - A.1.16.1 myotatic, flexor and crossed extensor reflexes
  - A.1.16.2 proprioception, pain transmission and motor function.
- A.1.17 Describes the topography and circuitry of the central nervous system in sufficient detail to explain the mechanisms of motor function, perception of pain, and to evaluate theories of the pathogenesis of musculoskeletal complaints involving these processes.

## **A.2 PHYSIOLOGY**

### **General Objective**

To understand the physiological basis of the mechanism of the clinical features of musculoskeletal complaints and their investigation and management.

### **Specific Objectives**

- A.2.1 Describes the cellular and biochemical processes involved in:
  - A.2.1.1 the generation and propagation of action potentials in nerve and muscle;
  - A.2.1.2 excitatory and inhibitory synapsis;
  - A.2.1.3 the neuromuscular junction;
  - A.2.1.4 axonal transport.
- A.2.2 Describes the activity and function of myotatic, flexion-withdrawal, crossed extensor and tonic-neck reflexes, and the reflex behaviour of animals subjected to spinal, brainstem and supracollicular transection.
- A.2.3 Describes the role in motor activities of motor units, motor neuron pools, the spinal cord tracts, the cerebellum, reticular formation, brainstem, thalamus, basal ganglia and cerebral cortex, in sufficient detail to interpret and explain the symptoms and signs of disorders of the motor system and to evaluate theories of musculoskeletal disorders implicating the motor system.
- A.2.4 Describes the principles of diagnostic electromyography and the use of EMG in research.
- A.2.5 Describes the physiological properties of sensory neurons and the systems used to classify these neurons.
- A.2.6 Describes the properties and behaviour of peripheral nociceptive neurons, afferent fibres from muscles and joints, and the peripheral mechanisms of proprioception.

- A.2.7 Describes the physiological properties of the pathways in the central nervous system that are involved in nociception, pain modulation and proprioception.
- A.2.8 Describes the phenomenon of referred pain, its clinical manifestations and contemporary theories of its physiological and anatomical bases.
- A.2.9 Describes the effects of the sympathetic nervous system on the cardiovascular system and on visceral and musculoskeletal structures.

### **A.3 PATHOLOGY**

#### **General Objective**

To express a command of the available knowledge of the pathology and pathogenesis of the more common disorders of the musculoskeletal system and the mechanisms of their clinical features.

#### **Specific Objectives**

- A.3.1 Lists in a systematic fashion all the disorders that may affect any region of the musculoskeletal system.
- A.3.2 Highlights the cardinal, distinguishing clinical, radiological or other diagnostic features of those disorders that may require established specialist management, and identifies the particular specialist or specialists to whom the patient would most appropriately be referred.
- A.3.3 Describes the pathological and pathogenetic processes that underlie the cardinal focal and systemic features of rheumatoid arthritis, ankylosing spondylitis and the seronegative spondylarthropathies, and the basis of clinical and laboratory techniques used for their diagnosis.
- A.3.4 Describes in detail the theories and established facts relating to the aetiology, pathogenesis, pathology, clinical expression and diagnostic features of degenerative joint diseases.
- A.3.5 Describes the cardinal features, embryological basis and clinical significance of congenital and developmental disorders of the vertebral column, posterior cranial fossa and spinal cord.
- A.3.6 Describes in detail the aetiology, pathogenesis, pathology, clinical expression, diagnostic features, and the biomechanical and functional consequences of so-called degenerative changes of the vertebral column.
- A.3.7 Demonstrates a capacity to evaluate the putative biomechanical and pathological bases of conditions currently considered idiopathic or controversial, such as:
  - A.3.7.1 spinal instability
  - A.3.7.2 "lumbar insufficiency"
  - A.3.7.3 compression and torsional injuries of the vertebral column
  - A.3.7.4 isolated disc resorption
  - A.3.7.5 intervertebral disc herniation and its variants
  - A.3.7.6 major and minor fractures of the vertebral column or its parts

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- A.3.7.9 "frozen shoulder"
- A.3.7.10 "tennis elbow"
- A.3.7.11 "regional pain syndromes",

and in the absence of definitive or accepted descriptions of these phenomena shows a capacity to evaluate contemporary opinions and a capacity to formulate logical descriptions on the basis of established anatomical and pathological knowledge.

- A.3.8 Describes the biochemical, pathological and biomechanical consequences of joint immobilisation.
- A.3.9 Outlines and evaluates contemporary and new theories of the mechanism and pathology of idiopathic spinal pain, and painful conditions of unknown or controversial origin affecting the joints of the appendicular skeleton.
- A.3.10 Describes the pathology of enthesopathy and its significance in musculoskeletal complaints.
- A.3.11 Synthesises the available data and viewpoints on the patho-physiology of fibromyalgia.
- A.3.12 Describes the pathology and pathophysiology of trigger points in muscle.
- A.3.13 Lists in a systematic fashion the diseases that may affect muscle, and identifies the cardinal features of rare, exotic or other disorders that may require established specialist management.
- A.3.14 Describes the pathology and pathophysiology of causalgia, reflex sympathetic dystrophy and its cogeners.

## **A.4 PHARMACOLOGY**

### **General Objective**

To understand the use of substances with therapeutic effects on neuromuscular and skeletal tissues and their employment in the management of musculoskeletal disorders.

### **Specific Objectives**

- A.4.1 Describes the pharmacology, with particular reference to possible side effects and interactions, of substances which may be administered by local application, including:
  - A.4.1.1 rubefacients, counterirritants
  - A.4.1.2 locally applied non-steroidal anti-inflammatory drugs
  - A.4.1.3 locally applied corticosteroids
- A.4.2 Describes the pharmacology, with particular reference to possible side effects and interactions, of substances which may be administered via the alimentary tract, including:

- A.4.2.1 antipyretic analgesics
- A.4.2.2 opiate analgesics
- A.4.2.3 skeletal muscle relaxants
- A.4.2.4 non-steroidal anti-inflammatory drugs
- A.4.2.5 anti-rheumatoid agents
- A.4.2.6 anti-gout agents
- A.4.2.7 enzyme preparations
- A.4.2.8 corticosteroid hormones
- A.4.3 Describes the pharmacology, with particular reference to possible side effects and interactions, of substances which may be administered by injection, including:
  - A.4.3.1 local anaesthetics
  - A.4.3.2 vasoconstrictors
  - A.4.3.3 corticosteroids
  - A.4.3.4 sclerosants
  - A.4.3.5 saline
  - A.4.3.6 water
  - A.4.3.7 enzyme preparations
- A.4.4 Demonstrates a capacity to assess the putative effects of other agents.

## **B. PATIENT ASSESSMENT**

### **B.1 HISTORY**

#### **General Objectives**

To understand the aspects of medical history-taking relevant to the assessment of a patient with a musculoskeletal complaint and to describe the steps in taking a history appropriate for the diagnosis of a musculoskeletal disorder.

#### **Specific Objectives**

- B.1.1 Describes the recording of the patient's identification and social history, including name, sex, age, laterality, present occupation (with work description), previous occupations, employment status, employer, source of income, domestic circumstances, dependants, sporting interests, hobbies and other leisure activities.
- B.1.2 Describes the recording of the patient's present symptoms, including pains, altered sensations, stiffness, deformity and loss of function, with particular reference to site, radiation, quality, periodicity, duration, mode of onset, aggravating and relieving factors, effects on lifestyle and treatment to date.
- B.1.3 Describes the recording of previous episodes of similar symptoms and the effects of management on them.
- B.1.4 Describes the recording of previous musculoskeletal problems not apparently related to the present symptoms.
- B.1.5 Describes the recording of the patient's general medical history, including intercurrent and past medical problems.
- B.1.6 Describes the recording of the patient's family medical history with particular reference to inheritable disorders.
- B.1.7 Describes the recording of the patient's history of drug intake, including tobacco, alcohol and all current medications, whether prescribed or otherwise.

- B.1.8 Describes the recording of any known allergies.
- B.1.9 Identifies risk factors, habits and practices in activities of daily living that may be deleterious to the musculoskeletal system or that might compromise management or recovery from musculoskeletal disorders or complaints.

## **B.2 PHYSICAL EXAMINATION**

### **General Objective**

To describe and demonstrate the steps in physical examination relevant to the assessment of a patient for the purposes of:

- i) making a differential diagnosis of any musculoskeletal disorders present, and
- ii) identifying non-musculoskeletal disorders that may mimic musculoskeletal disorders.

### **Specific Objectives**

- B.2.1 Describes the anatomical, physiological and pathological bases for physical signs elicited in musculoskeletal examination.
- B.2.2 Describes the recognition of physical signs characteristic of specific musculoskeletal syndromes.
- B.2.3 Describes the elicitation of physical signs relevant to specific musculoskeletal syndromes.
- B.2.4 Describes and demonstrates the steps in physical examination pertinent to the assessment of a patient with any particular musculoskeletal complaint.
- B.2.5 Describes and demonstrates the examination of the static and dynamic alignment of the components of the musculoskeletal system, including the examination of normal and abnormal gait.
- B.2.6 Describes and demonstrates the examination of muscles and tendons for normal features and abnormal features.
- B.2.7 Describes and demonstrates the examination of entheses for normal features and abnormal features.
- B.2.8 Describes and demonstrates the examination of ligaments for normal features and abnormal features.
- B.2.9 Describes and demonstrates the examination of fasciae for normal features and abnormal features.
- B.2.10 Describes and demonstrates the examination of bones for normal features and abnormal features.
- B.2.11 Describes and demonstrates the examination of osseous components of joints for normal features and abnormal features.
- B.2.12 Describes and demonstrates the examination of intra-articular components of joints for normal features and abnormal features.
- B.2.13 Describes and demonstrates the examination of capsular components of joints for normal features and abnormal features.



- B.2.14 Describes and demonstrates the examination of adnexae of joints for normal features and abnormal features.
- B.2.15 Demonstrates the examination of joint mobility, in terms of active movements, passive movements, resisted movements, range, rhythm, association with pain, rapid movements, repetitive movements, coupled movements and quadrant movements.
- B.2.16 Describes and demonstrates the examination of the peripheral nervous system and the central nervous system as it pertains to musculoskeletal disorders.
- B.2.17 Describes and demonstrates the non-organic features which may be detected during the assessment of a patient with a musculoskeletal complaint, and discusses the reliability of these features.
- B.2.18 Describes the conclusions which may be drawn from the results of the physical examination of a patient, and discusses the reliability of these conclusions.
- B.2.19 Describes and demonstrates the steps in physical examination required to establish any contra-indication to ancillary investigation or treatment.

### **B.3 ANCILLARY INVESTIGATIONS**

#### **General Objective**

To understand the indications for ancillary investigations of the musculoskeletal system, the principles of their performance and the diagnostic significance of their results.

#### **Specific Objectives**

- B.3.1 Lists the indications and discusses the diagnostic significance of blood tests that may be used in the investigation of musculoskeletal complaints.
- B.3.2 Describes the principles of the techniques of joint aspiration and bone and muscle biopsy, and discusses the indications, diagnostic significance and morbidity of these procedures.
- B.3.3 Describes the principles of the techniques of:
  - B.3.3.1 plain radiography
  - B.3.3.2 tomography
  - B.3.3.3 computerised axial tomography
  - B.3.3.4 magnetic resonance imaging
  - B.3.3.5 cineradiography
  - B.3.3.6 arthrography
  - B.3.3.7 myelography
  - B.3.3.8 discography
  - B.3.3.9 provocation discography
- B.3.4 Lists the conditions or the nature of pathological changes that can be revealed by each of the procedures listed in specific objective B.3.3, and discusses the sensitivity and specificity of each procedure for these conditions.
- B.3.5 Recognises the cardinal radiological appearances of neoplastic, inflammatory, infective, metabolic, congenital and traumatic diseases of the musculoskeletal system that may require urgent or established specialist investigation and management.

- B.3.6 Describes the principles of radioisotope scans and their application in the investigation of musculoskeletal complaints.
- B.3.7 Outlines the type of information that can be revealed by electrodiagnostic techniques, including surface and needle electromyography and nerve conduction studies, and deduces the indications and limitations of electrodiagnosis.
- B.3.8 Describes the principles and the techniques of diagnostic blocks of nerves, joints, or other structures, as they are used in the investigation of musculoskeletal complaints, and discusses the specificity and sensitivity and clinical application of each.

## **B.4 ERGONOMICS**

### **General Objective**

To understand in general terms the interaction between man and work, with specific emphasis on the musculoskeletal demands of work activity, and on the musculoskeletal injuries which may result.

### **Specific Objectives**

- B.4.1 Describes the basic anthropometric measurements relevant to the evaluation of human function in the work place and the individual variability which may affect work performance.
- B.4.2 Describes the basic biomechanical principles which apply to human performance at work, including body parts as levers and the determinants of torque at joints.
- B.4.3 Describes the importance of physical environmental factors to human work performance including heat, light, colour, noise and vibration.
- B.4.4 Describes the particular musculoskeletal demands of specific work postures and activities including the seated posture and components of chair design, upper limb activities and manual materials handling.
- B.4.5 Describes basic concepts of neuromuscular and psychological fatigue, and its relationship to specific work activities.
- B.4.6 Demonstrates an ability to adapt patient assessment techniques to include relevant ergonomic factors, in cases of suspected work-related injury, and to integrate the history and physical findings with regard to possibly work-related injury.

## **C. DIAGNOSIS**

### **General Objective**

To understand the principles of the establishment of a diagnosis and its expression in appropriate terminology, with specific reference to disorders of the musculoskeletal system.

### **Specific Objectives**

- C.1 Describes the principles of the establishment of a diagnosis of a musculoskeletal disorder, including:
  - C.1.1 Clinical methods of patient assessment

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- C.1.2 Comparison with structural and functional norms
- C.1.3 Comparison with known patterns of musculoskeletal dysfunction
- C.1.4 The appropriate use of ancillary investigations
- C.1.5 Appreciation of the possible psychological sequelae of musculoskeletal disorders or injuries
- C.1.6 Psycho-social methods of patient assessment.
- C.2 Describes the expression of musculoskeletal diagnoses in a systematic way, using standardised terms to denote anatomical structures involved, the effects on their physiological and biomechanical functions and the nature of the associated pathological processes.
  - C.2.1 Describes the standards for structural terms.
  - C.2.2 Describes the standards for functional terms.
  - C.2.3 Describes the standards for pathological terms.
  - C.2.4 Describes guidelines for the abbreviation of diagnostic statements to short phrases convenient for use in oral or written communication.
  - C.2.5 Provides examples of systematic expression of the diagnoses of the more common musculoskeletal disorders in terms which conform to standards of these objectives.
- C.3 Demonstrates a capacity to relate diagnosis to aetiology.
- C.4 Critically evaluates the accuracy and ambiguity of diagnostic terms and statements used in musculoskeletal medicine.

## **D. PREVENTION**

### **General Objective**

To understand and apply the general principles of primary prevention as they pertain to musculoskeletal medicine.

### **Specific Objectives**

- D.1 Demonstrates judicious use of a knowledge of anatomy, physiology, biomechanics, and pathology to formulate and/or critically evaluate putative relationships between habits, postures, activities of daily living, recreational and work activities and the genesis of musculoskeletal disorders and complaints.
- D.2 In terms of theories described in D.1, outlines rational measures that could be taken to prevent the genesis of musculoskeletal disorders and evaluates the reliability of such measures to achieve these aims.
- D.3 Describes the design of research projects that would be required to vindicate actions described in D.2.

## **E. PATIENT MANAGEMENT**

### **General Objective**

To understand the selection and use of various therapeutic modalities, individually and in combination, to provide the safest, most efficacious treatment regime pertinent to the patient's complaint and disorder.

### **Specific Objectives**

Describes the following modalities of management:

- E.1 Rest
- E.2 Patient Education
- E.3 Therapeutic Exercise
- E.4 Supports and aids
- E.5 Thermo-, hydro-, and electro-therapies
- E.6 Manual Therapy
- E.7 Traction
- E.8 Medication
- E.9 Neuromodulation
- E.10 Surgery
- E.11 Psycho-social Management
- E.12 Rehabilitation

### **E.1 REST**

#### **General Objective**

To understand the physiological and pathological effects of rest and the principles of its use in the management of musculoskeletal disorders.

#### **Specific Objectives**

- E.1.1 Describes the effects of rest on the physiological and biomechanical functions of musculoskeletal tissues.
- E.1.2 Describes the relationships between rest and pathological processes, including the effects of rest on such processes and the pathological effects of immobilisation and inappropriate rest.
- E.1.3 Describes the place of rest in regimes for the treatment and prophylaxis of musculoskeletal disorders.
- E.1.4 Describes types of rest and the principles of their application, in particular:
  - E.1.4.1 general rest, including bed rest and modified activities.
  - E.1.4.2 specific rest of an injured part.
- E.1.5 Describes the role of specific forms of rest in musculoskeletal management including their indications for particular conditions, their contra-indications and means of monitoring their effects.
- E.1.6 Describes the prescription of rest as a treatment modality.



## **E.2 PATIENT EDUCATION**

### **General Objective**

To understand and appreciate the role of patient education in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.2.1 Describes the process of explaining to a patient the relevant features of that patient's musculoskeletal disorder.
- E.2.2 Demonstrates an awareness of the importance of the active role of the patient in self management, especially with regard to chronic musculoskeletal disability.

## **E.3 THERAPEUTIC EXERCISE**

### **General Objective**

To understand the physiological and pathological mechanisms of exercise and the place of exercise in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.3.1 Describes the effects of exercise on the physiological and biomechanical functions of the tissues involved.
- E.3.2 Describes the effects of exercise on pathological processes.
- E.3.3 Describes the place of exercise in regimes for the treatment and prophylaxis of musculoskeletal disorders.
- E.3.4 Describes the principles of therapeutic exercise designed to stretch, relax, strengthen, mobilise, retrain and co-ordinate muscles and joints.
- E.3.5 Describes the principles of active, active-assisted, resisted and passive (including continuous passive motion) exercise techniques.
- E.3.6 Describes the principles of isometric, isotonic and isokinetic exercise.
- E.3.7 Demonstrates the application of active, active-assisted, resisted and passive (including continuous passive motion) exercise techniques.
- E.3.8 Demonstrates the application of isometric, isotonic and isokinetic exercise.
- E.3.9 Describes the performance of various types of therapeutic exercise, including stretching, relaxation, strengthening, mobilisation, endurance training, co-ordination, balance, proprioception, posture, and neuromuscular re-education (including E.M.G. biofeedback and movement awareness training).
- E.3.10 Describes the role of specific therapeutic exercises in musculoskeletal management including their indications for particular conditions, their contra-indications and means of monitoring their effects.
- E.3.11 Describes the prescription of exercises as a treatment modality.
- E.3.12 Describes various schools of thought on the uses of exercises in musculoskeletal management.

## **E.4 SUPPORTS AND AIDS**

### **General Objective**

To understand the biomechanical effects of supports and aids on musculoskeletal tissues and the appropriate uses of such devices in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.4.1 Describes the biomechanical effects of support on musculoskeletal tissues.
- E.4.2 Describes the principles of the use of supports and aids in musculoskeletal disorders.
- E.4.3 Describes the mechanism and degree of support provided by bandages, strapping, prostheses and orthoses.
- E.4.4 Demonstrates the application of supports and aids listed in E.4.3.
- E.4.5 Describes the indications and contra-indications for the use of supports and aids in the management of specific musculoskeletal disorders.
- E.4.6 Describes the prescription of supports and aids listed in E.4.3.

## **E.5 THERMO-, HYDRO- AND ELECTRO-THERAPIES**

### **General Objective**

To understand the effects of cooling, heating, hydrotherapy and electrotherapies on neuromuscular and skeletal tissues and the appropriate use of such modalities in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.5.1 Describes the physiological, biomechanical and pathological effects of:
  - E.5.1.1 local cooling
  - E.5.1.2 spray and stretch
  - E.5.1.3 superficial heating
  - E.5.1.4 short wave diathermy
  - E.5.1.5 ultrasound
  - E.5.1.6 interferential
  - E.5.1.7 high voltage galvanism
  - E.5.1.8 hydrotherapy
- E.5.2 Describes the indications and contra-indications for the modalities listed in E.5.1.
- E.5.3 Describes and justifies any preferred means of providing or arranging for the use of the modalities listed in E.5.1.
- E.5.4 Describes the prescription of the modalities listed in E.5.1.

## **E.6 MANUAL THERAPY**

### **General Objective**

To understand and appreciate the potential benefits and hazards of manual therapy, its rational basis and clinical application.

### **Specific Objectives**

- E.6.1 Describes manual therapy in terms of soft-tissue techniques, mobilisation and manipulation.
- E.6.2 Describes the known or putative biomechanical and physiological effects of each of the modalities listed in specific objective E.6.1 and for each modality, describes an appreciation of the magnitude and direction of the force exerted on the target structure and the nature, amplitude and direction of any deformation or movement of the target structure and any other structures or tissues that may be expectedly or inadvertently affected.
- E.6.3 Describes the types of musculoskeletal disorders that may be treated by soft-tissue techniques, mobilisation or manipulation.
- E.6.4 Explains the indications and contra-indications for soft-tissue techniques, mobilisation and manipulation for specific musculoskeletal disorders.
- E.6.5 Describes studies of the efficacy of manual therapy in relation to other musculoskeletal treatment modalities in the management of specific musculoskeletal disorders.
- E.6.6 Describes the advantages and disadvantages of manual therapy in relation to other management techniques.
- E.6.7 Describes the availability of various forms of manual therapy.
- E.6.8 Describes the implementation of manual therapy for specific musculoskeletal disorders, either personally or by referral.
- E.6.9 Describes the prescription of manual therapy.

## **E.7 TRACTION**

### **General Objective**

To understand the principles of traction and its role in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.7.1 Describes the beneficial and deleterious anatomical, physiological and biomechanical effects of traction on musculoskeletal structures.
- E.7.2 Describes the modalities of traction used in the management of musculoskeletal disorders.
- E.7.3 Describes and demonstrates the application of specific modalities of traction.
- E.7.4 Describes the indications and contraindications for the use of traction in the management of specific musculoskeletal disorders.
- E.7.5 Justifies adopting or not adopting particular modalities of traction in various circumstances.
- E.7.6 Describes the prescription of specific modalities of traction.

## **E.8 MEDICATION**

### **General Objective**

To understand the use of substances with therapeutic effects on neuromuscular and skeletal tissues and their employment in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.8.1 Describes the use of substances administered by local application, including:
  - E.8.1.1 rubefacients, counterirritants
  - E.8.1.2 locally applied non-steroidal anti-inflammatory drugs
  - E.8.1.3 locally applied corticosteroids
- E.8.2 Describes the use of substances administered via the alimentary tract, including:
  - E.8.2.1 antipyretic analgesics
  - E.8.2.2 opiate analgesics
  - E.8.2.3 skeletal muscle relaxants
  - E.8.2.4 non-steroidal anti-inflammatory drugs
  - E.8.2.5 anti-rheumatoid agents
  - E.8.2.6 anti-gout agents
  - E.8.2.7 enzyme preparations
  - E.8.2.8 corticosteroid hormones
- E.8.3 Describes the use of substances administered by injection and the role of injection therapy in musculoskeletal treatment regimes.
  - E.8.3.1 Describes the types of injections used in the treatment of musculoskeletal disorders.
  - E.8.3.2 Describes the physical, chemical and microbiological hazards of injections used in musculoskeletal medicine and measures for the prevention and treatment of such hazards.
  - E.8.3.3 Describes the indications and contra-indications for injection therapy for musculoskeletal disorders and sets out the place of injections in musculoskeletal treatment regimes.
  - E.8.3.4 Describes studies of the relative efficacy of injection therapy and other musculoskeletal treatment modalities in the management of specific musculoskeletal disorders.
  - E.8.3.5 Describes the principles and practical techniques of injections into trigger points, entheses, joints, bursae and epidural spaces.
  - E.8.3.6 Describes an outline of the principles and techniques of injections into discs, peripheral nerves, sympathetic nerves, stellate and coeliac plexi and paravertebral tissues including dorsal rami and spinal nerves and plexi.

## **E.9 NEUROMODULATION**

### **General Objective**

To understand the effects of neuromodulation on patients' symptoms and the appropriate use of such modalities in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.9.1 Describes the neuro-physiological effects and safe application of transcutaneous electrical nerve stimulation (TENS).
- E.9.2 Describes briefly theoretical mechanisms of acupuncture and outlines its application in musculoskeletal disorders.
- E.9.3 Demonstrates an awareness of the use of neurosurgical techniques such as epidural stimulation, deep brain stimulation and dorsal route entry zone lesions in pain management and outlines the availability of resources.

## **E.10 SURGERY**

### **General Objective**

To understand the role of surgery in the management of musculoskeletal disorders.

### **Specific Objectives**

- E.10.1 Describes the types of musculoskeletal disorders that may be treated by surgery.
- E.10.2 Describes the types of operations available for the treatment of musculoskeletal disorders.
- E.10.3 Describes the indications and contra-indications for surgery in the management of specific musculoskeletal disorders and sets out the place of surgery in musculoskeletal therapeutic regimes.
- E.10.4 Describes studies of the relative efficacy of surgery and other musculoskeletal treatment modalities in the management of specific musculoskeletal disorders.
- E.10.5 Describes the various schools of thought on surgery of the spine, with particular reference to fusion, laminectomy and discectomy.
- E.10.6 Describes the various schools of thought on surgery of peripheral musculoskeletal structures, with particular reference to decompression procedures, operations on entheses and joint replacements.
- E.10.7 Describes the referral of patients who may require surgical management.
- E.10.8 Describes post-operative musculoskeletal management.

## **E.11 PSYCHO-SOCIAL MANAGEMENT**

### **General Objective**

To understand the psychological and social consequences of musculoskeletal injury and illness and the principles involved in their management.

### **Specific Objectives**

- E.11.1 Describes the psychological effects of disability in general and of disability due to musculoskeletal conditions in particular.
- E.11.2 Describes the effects of disability on lifestyle, including working capacity, leisure activities, household tasks, sexual activities and personal care.

- E.11.3 Describes the processes of litigation in relation to musculoskeletal disorders, and the effects of such legal processes on the patient's psyche and lifestyle.
- E.11.4 Describes counselling strategies useful for the modification of the personal and psychological effects of musculoskeletal disorders and their sequelae.
- E.11.5 Describes the behavioural techniques involved in the psychosocial management of patients with disability and chronic pain arising from musculoskeletal injury and illness.
- E.11.6 Describes the circumstances in which referral to specialised psychosocial services is required, and the nature and availability of such resources.

## **E.12 REHABILITATION**

### **General Objective**

To understand the principles of rehabilitation of patients with musculoskeletal disorders and the rehabilitation services available to them.

### **Specific Objectives**

- E.12.1 Describes the principles of rehabilitation and their application for patients with musculoskeletal disorders.
- E.12.2 Describes the rehabilitation services available to patients with musculoskeletal disorders.
- E.12.3 Describes referral of patients with musculoskeletal disorders to appropriate Rehabilitation Medicine services.
- E.12.4 In cases of work-related injury, demonstrates an ability to integrate the principles of musculoskeletal management into the broader context of occupational rehabilitation.

## **F. PRACTICE CONDUCT**

### **General Objective**

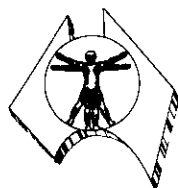
Describes the equipment, personnel and record systems necessary for the safe and efficient conduct of a musculoskeletal practice.

### **Specific Objectives**

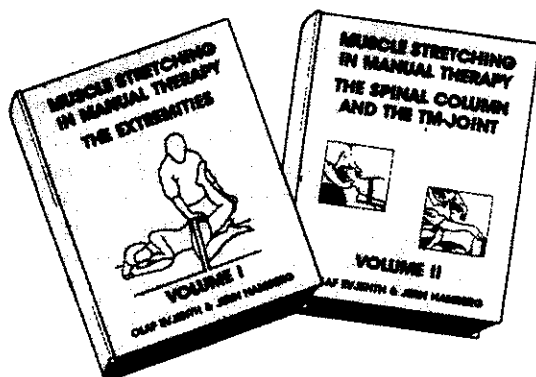
- F.1 Describes how the architectural design of practice rooms may facilitate or compromise the safe and efficient conduct of musculoskeletal practice.
- F.2 Lists the equipment and other ancillary facilities required for the safe conduct of musculoskeletal practice.
- F.3 Describes when and where the presence of other personnel may be necessary.
- F.4 Describes and demonstrates a system of recording musculoskeletal information and maintaining patient records, recognising the advantages and disadvantages of any preferred technique.
- F.5 Describes the format and content of written reports suitable for communications to:

- F.5.1 patients
- F.5.2 other medical practitioners
- F.5.3 paramedical health professionals
- F.5.4 members of the legal profession
- F.5.5 government and statutory bodies

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**Xin Shiqing, Zhang Quanzhi, Fan Dehao. Significance of the Straight Leg Raising Test in the Diagnosis and Clinical Evaluation of Lower Lumbar Intervertebral Disc Protrusion. J Bone Joint Surg, 69A, No.4, April, 1987.**

This paper presents 113 patients in whom protrusion of a lumbar intervertebral disc was confirmed at operation. The protrusions were classified into three types according to position in relation to the dura mater. The pattern of pain that was induced by passive straight leg raising and the position of the protrusion at operation was noted. On straight leg raising central protrusions caused pain in the back, lateral protrusions caused pain in the lower extremity and intermediate protrusions caused both.

The paper discusses what causes the pain in the back and lower extremity on straight leg raising. It records that epidural local infiltration eliminated pain for the duration of the local anaesthesia. The authors postulate that pain may be related to stimulation of the sinuvertebral nerve by a protruding disc causing referred pain in the distribution of the dorsal branch of the spinal nerve.

The paper provides an interesting factual study and discusses the significance of the straight leg raising test.

**Boumphrey, et al. Computed Tomography Scanning After Chymopapain Injection for Herniated Nucleus Pulposus. C.O.R.R., 1987.**

This study prospectively evaluated the CT appearances of herniated L4/5 and L5/S1 intervertebral discs in 50 patients undergoing chymopapain injection.

Scans were undertaken before injection and at 3 months. Ten patients were also scanned at 6 months. All patients had abnormal disc appearances on CT scan before injection.

Only 6 patients had overt changes in the CT appearances of their herniated discs 3 months following injection, while seven of the ten patients scanned at 6 months had obvious changes on CT scan, suggesting that changes may occur between 3 and 6 months.

The authors discuss possible mechanisms whereby chymopapain therapy may effect relief of radicular pain without corresponding radiological evidence of change in disc appearances. They suggest that chymopapain treatment, by changing intradiscal properties, may reduce the "jackhammer effect" where pressure waves are thought to be transmitted from the nucleus to the spinal nerve through the herniation. This theory is thought to be more attractive than the notion that mechanical reduction in size of the disc herniation accounts for clinical improvement.

**Roy J. Shephard. Factors Influencing the Exercise Behaviour of Patients. Sports Medicine 2: 348-66, 1985.**

Are you having difficulty motivating your patients to undertake regular exercise? This article reviews the various problems you are likely to encounter.

The author indicates that the most successful long-term exercise programmes should include large-muscle group activity exercises with the opportunity for socialisation and enjoyment. The specific form of exercise should be relevant to the individual's sex, age, body build, medical status and level of fitness. Exercises should be neither too easy or too demanding, and the beneficial effect of an experienced and enthusiastic instructor is recognised.

It is recognised that the factors motivating an individual to begin exercising may not be the same as those which will ensure long-term compliance. While a desire for improved health and fear of incapacity are strong initial motivating factors, long-term maintenance seems to depend more on the enjoyment of exercise participation, the satisfaction of acquiring new skills and performance, and an improved sense of well-being and self-image. The role of the doctor in maximising external reinforcement of the exercise habit is clear, and should continue until the early training discomforts are overcome and the patient feels internally reinforced by the subjective benefits of his exercise lifestyle.



## DO YOU STILL BELIEVE?

### Do you still believe that increased lordosis causes back pain during pregnancy?

If so, you should read Bullock, J.E., Jull, G.A., Bullock, M.I.: "The relationship of low back pain to postural changes during pregnancy". *Australian Journal of Physiotherapy* 33: 10-17, 1987. These investigators studied 34 women attending an antenatal clinic at a large Brisbane hospital. None of the women had a prior history of back pain, but 88% developed back pain during their pregnancies. Using a clinometer and electro-goniometer, measurements were made of the degree of kyphosis, lordosis and pelvic inclination in these patients, initially between the 14th and 22nd week of gestation and twice again at 8 weekly intervals.

It was found that for the population as a whole, the mean lordosis and kyphosis angles increased during pregnancy. Pelvic inclination initially decreased but later increased. However, no sustained relationship between posture and pain was revealed. At no stage was lordosis significantly related to pain. Patients with pain had a greater mean kyphosis angle at the time of the second assessment but this relationship was not maintained at the third assessment. A relationship was found between pain, height, weight and pelvic inclination but only at the second assessment.

The failure of this study to bear out sustained, significant relationships indicates that there is no simple relationship between pain and posture during pregnancy. Back pain in pregnancy therefore cannot be ascribed loosely to alterations in posture. Its cause remains enigmatic. The effect of relaxin or other hormones of pregnancy appear to be an attractive field for further research into this problem. However, if there are any biomechanical aspects to the cause of pain in pregnancy, they appear to be very subtle or obscure and not related to clinically evident changes in posture.

### Do you still believe in skin-fold tenderness as a significant physical sign?

If so, you should read Hirschberg G.G., Fatt, I., Dirin Brown, R: "Measurement of Skin Mobility in the Upper Back". *Scandinavian Journal of Rehabilitation Medicine* 18: 173-175, 1986. These authors investigated the hypothesis that skin-fold tenderness was a sign of adherence of the skin to underlying tissues, so-called panniculitis. Skin-fold tenderness was tested by manual examination and skin mobility was tested using a suction cup.

Nine subjects were studied in whom skin tenderness was diagnosed by manual examination as severe and accompanied by tethering. After treatment by skin-rolling massage, tenderness was judged to be moderate to zero and the skin felt loose to the examiner. However, studies with the suction cup revealed no change in skin mobility.

These observations denied any intrinsic mechanical pathology in the skin or subcutaneous tissues that would account for skin tethering and tenderness.

Further studies in six subjects revealed that skin mobility was reduced by 50% if the underlying muscles were contracted.

The authors concluded that in fibrositis syndromes, skin tenderness is not due to intrinsic cutaneous pathology, but is probably a disorder of pain perception. The apparent adherence of skin to underlying tissues is probably an illusion. It is most likely that the pain produced by manual examination of the skin causes reflex muscle contraction which in turn gives the examiner the impression of adherence.

## Do you still think that a Balans chair is good for you?

You should read Lander, D., Korbon, G.A., De Good, D.E., Rowlingson, J.C. "The Balans Chair and its semi-kneeling position: an ergonomic comparison with the conventional sitting position". *Spine* 12: 269-272, 1987. These investigators studied 20 healthy volunteers who sat in a Balans chair and a conventional, upright chair for periods of 30 minutes. Measurements were made of blood pressure, pulse rate, respiratory rate, pedal cutaneous blood flow, cervical and lumbar EMG, and comfort.

In the two postures, no differences were found in blood pressure, pulse rate or respiration. Pedal blood flow was 15% greater when the Balans chair was used. Initially there were no differences in paraspinal EMG activity, but after 25 minutes sitting cervical EMG levels rose when the Balans chair was used. There were no differences in lumbar EMG. The subjects recorded a slight preference for conventional sitting when comfort was assessed.

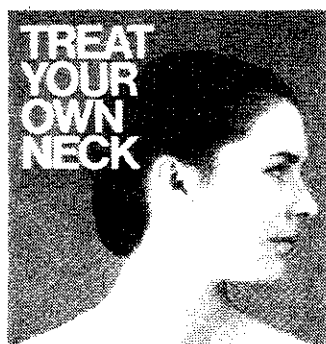
The authors concluded that their study vindicated the manufacturer's claim that use of the Balans chair increases circulation to the lower limbs. However, they denied the claim that the Balans chair serves to reduce muscle strain in the low-back by encouraging a "more correct" posture. The absence of a difference in lumbar EMG levels indicates that the lumbar back muscles are no more relaxed when the Balans chair is used, and suggests that the lumbar spine is under the same stress as in conventional sitting.



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## KINDRED RESEARCH SOCIETIES

It would be safe to assume that what has bound members of the AAMM has been a common interest in back pain and its cogeners. Similarly, this has been the interest that has fostered other organisations. Some members will know of some of these groups and may be members of them. For others it may be of value to learn of them.

The **International Association for the Study of Pain (IASP)**, soon to be known as the **International Pain Society**, embraces clinical and research interests in any aspect of any form of pain. Membership is available to anyone involved in pain if nominated by two members of the IASP, and costs about \$US70; it includes a subscription to the journal *Pain*. While back pain is recognised as a major problem the main thrust of the IASP has been in the neuroscience and mechanisms of pain, cancer pain and the psychology of pain.

The **Australian Pain Society (APS)** is the Australian Chapter of the IASP and represents a similar spectrum of interests. Its meetings have explored aspects of back pain and pain in general that traditionally have not been the province of AAMM, in particular the psychological aspects of chronic pain. Members would be well-advised to take advantage of the resources of the APS and come to appreciate the psychological dimensions back pain and other problems in musculoskeletal medicine.

The **Australian Headache Society** is the local branch of the **International Headache Society**, and has been formed only recently in preparation for hosting the 4th International Congress on Headache in Sydney in 1989. Although headache has traditionally been the province of neurologists, there is increasing awareness of the cervical spine as a source of headache and a sub-group of the International Headache Society has recently formed a **Cervicogenic Headache Society** to foster research and education in this field.

Perhaps the strongest and most august group in the field of back pain is the **International Society for the Study of the Lumbar Spine (ISSLS)**. Membership is limited in number and is by nomination and competitive election as vacancies occur. The society conducts yearly international meetings and is largely responsible for the journal *Spine*. Its foremost achievement has been to foster and sponsor spine research and in this regard it conducts a yearly competition, the Volvo Awards for Back Pain Research. Each year three prizes are awarded in the fields of Basic Sciences, Bioengineering and Clinical Sciences. In 1987, each prize was worth \$US7,000.

A disadvantage of ISSLS meetings is that they are held overseas, at expensive locations, and attendance requires sponsorship by a member, of whom there are few in Australia. However, should anyone ever be able to attend a meeting they would be rewarded by the very latest developments in lumbar spine knowledge, for the papers presented come from the most advanced research units in the world.

Meetings of the IASP are also expensive, but very, very large, and would expose a registrant to every minute aspect of developments in pain in general; there are usually two or three sessions dedicated to back pain and musculoskeletal pain.

Meetings of the APS are perforce smaller but are worth attending to be exposed to a multidisciplinary viewpoint on back and spinal pain; reciprocally the APS might benefit from an input from AAMM members that might redress a contemporary preoccupation with psychological issues at the expense of detailed and informed organic musculoskeletal assessment and management.

Some members might be curious about the organisations with whom we are conjointly holding this year's Annual Meeting. The New Zealand Association of Musculoskeletal Medicine is our sister organisation from across the Tasman with whom we have an established precedent periodically to hold joint meetings. This year was our turn to host the New Zealanders; so our conjunction with them is obvious.

It is the **Australian Spinal Research Society (ASRS)** that is perhaps unfamiliar and mysterious to members. However, those familiar with this Bulletin will recall that the ASRS was introduced in Volume 1, number 1 in 1985. The ASRS was constituted to provide a means for active researchers to meet together and by holding public meetings to provide didactic updates on knowledge of all aspects of the spine.

Requirements for membership of ASRS are stringent. Initial membership requires that within the previous three years, the member has published a paper reporting original research findings on any aspect of the spine in an internationally recognised, refereed journal. Continued membership is contingent upon the member continuing to so publish at least once every three years. The purpose of this stringency was to ensure that the membership was respectable, reputable, scientifically skilled and responsible, in order that the meetings the Society held would be correspondingly reputable and responsible.

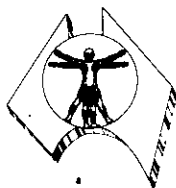
The result of this stringency is that few people qualify for membership but this has not impeded the activities and achievements of the Society. Originally the membership stemmed from the anatomists of Western Australia and Queensland and their students, who were engaged in spinal research, and indeed the Society arose out of a Symposium on the Spine conducted by the Anatomical Society of Australia and New Zealand in 1984. Subsequently other members have been recruited from Orthopaedics, Physiotherapy, Biochemistry and Engineering, all actively engaged in spinal research.

The Society is non-partisan professionally; active reputable research achievement being the sole criterion for membership. Accordingly, the membership also includes one academic chiropractor who has contributed to international spinal research. The stringent requirements preclude membership on the basis of self-professed interest or mastery, or for the purposes of propagating partisan and unsubstantiated medico-political doctrine of any ilk.

Although small (having only a membership of 13), the ASRS is not insignificant on an international scale. On a per capita and per-research dollar basis Australia has become the most productive and recognised spinal research centre in the world. Australian papers are constantly appearing in the international literature and members of ASRS currently hold 3 of the total of 21 Volvo Awards for back pain research that have been awarded.

Given the AAMM's interest in spinal disorders the Committee decided that it was appropriate and fitting that the AAMM and ASRS meet together, the ASRS to experience an audience of practitioners working with a passion "in the field", and the AAMM to be exposed to the latest in scientific knowledge. For the latter, because developments are so prolific, the combined conference will focus on only one issue: the lumbar disc. It is not a conference on back pain: knowledge on that topic is now so extensive that it cannot be reduced to a weekend topic. Even the disc alone now fills an entire programme.

For some, the programme may appear esoteric or academic but that is the nature and breadth of contemporary new knowledge. The developments have come in biomechanics, pathology and in a most revolutionary way in radiology. However, throughout the programme, abundant time has been set aside for discussion in order that participants can ensure they have grasped the new knowledge and can explore the implications for clinical practice.



# A LECTURE BY PROFESSOR VLADIMIR JANDA

delivered at the Queen Elizabeth Hospital, Adelaide,  
on Thursday, 27th August, 1987.

Professor Janda visited Adelaide at the invitation of the Australian Association of Musculoskeletal Medicine and was the guest of the Physical Medicine Department of the Queen Elizabeth Hospital. During his stay in Adelaide he gave a general lecture to health professionals and a seminar to physiotherapists. He also conducted a three day workshop for doctors and physiotherapists.

At the lecture, which was well attended by medical and physiotherapy staff, he gave an outline of his theory concerning the importance of muscles in certain pain syndromes of the musculoskeletal system. The essence of his talk is as follows.

When thinking of pain in the musculoskeletal system we usually think of joints and soft tissues, as these appear to be the most likely structures to be damaged. Recently it has been found that muscles play an important part in the origin of pain and therefore the treatment of muscles should play a more important part in therapy.

Muscles are important in the pathogenesis of certain musculoskeletal syndromes. The more we know about muscles, the more it seems to be evident that the changed or altered or impaired function of muscles plays a decisive role in perceiving pain.

General muscular dysfunction needs to be identified because it can be responsible for recurrent as well as acute episodes of musculoskeletal pain.

In principle we can identify two basic problems of muscular function. The first is associated with acute muscle spasm: here the patient has a joint restriction due to spasm of the muscles crossing the joint. The second role depends on our lifestyle and our movement habits, whereby we develop muscle imbalance and this gives rise to muscle tightness or shortness. Other muscles will develop in a different way and then cause inhibition or weakness of their fibres. Our lifestyle allows the tight muscles to be facilitated and the weak muscles to be inhibited and the more the activity, the greater the imbalance.

The limbic system plays an important role in the co-ordination of muscle function. First it has a triggering role; that is, to start a movement of the muscle the limbic system is operative. The limbic system controls our perception of pain and it is a link between the psychic and the motor functions of the body. This is demonstrated when chronic pain sufferers are seen to have psychological problems in their perception of their pain.

The basic programming of muscle movement is the proprioceptive input from the peripheral structures. Any alteration of function of the peripheral structure alters the programming of the central structures.

The cerebellum plays a basic role in the preprogramming of a particular movement. The current theory for idiopathic scoliosis is an expression of the cerebellar regulatory role. It is not a regulation of the central nervous system and the cerebellum in particular. All treatment aimed at correcting the vertebral column has failed because the cause is something to do with the cerebellum and its output to muscles.

Another point is that the basic motor programme is worked out in the parietal lobe. This means that the movement is worked out here and transferred through to the frontal lobe. The sensory or afferent pathways play a passive role. Any attempt to improve our motor performance is concerned more with the proprioceptive stimulation of the peripheral structures. The motor learning process therefore runs at two levels: the cortical and the sub-cortical.

In low back pain patients there is often insufficient activity of the gluteal muscles. Treatment is to teach the patient to move the gluteal muscles at the expense of the iliopsoas or tensor fascia lata. Muscle imbalance is between those muscles which have a phasic function and those that have a postural function. Muscles which get tight are stronger than those which become inhibited. The imbalance is maintained by continuing poor posture. It is impossible to introduce a specific exercise to strengthen a muscle if related muscles are tight; e.g. trunk extensors, if tight, have too much activity to allow abdominal muscles to be strengthened when doing conventional sit-ups. Thus to continue to attempt to strengthen the abdominal muscles by doing sit-ups has the reverse effect, i.e. the trunk extensors are strengthened and the abdominal muscles are weakened. This means that an exercise programme has to be designed that will stretch the tight muscles before any strengthening exercises can be undertaken.

As a further example of muscle imbalance, Professor Janda talked at some length about the layered syndrome, i.e. alternating layering of hypo- and hypertrophic muscles. In many cases of low back pain, the hamstrings are hypertrophic, the gluteals hypotrophic, the trunk extensors at L5-S1 are hypertrophic, the thoracolumbar hypotrophic, while the mid-thoracic extensors are hypertrophic.

The presence of hypertrophic truncal extensors at L4-S1 gives rise to an increased lordosis. The increased lordosis then gives rise to an overuse of all structures in the area including ligaments, apophyseal joints, discs, etc., thus increasing pain. A method has been devised to make the inhibited muscles work and to stretch the tight muscles. In this programme the patient is made to walk in a labile situation by attaching hemispheres to wooden sandals. The patient walks on these hemispheres for several minutes, several times a day, in order to activate the muscles which need strengthening. In order to facilitate this activation, the quadratus plantae muscles are activated by pushing the metatarsal heads down onto the surface of the wooden shoe. This increases the proprioceptive impulses and alters the function of the layers of the muscles, i.e. the pelvis is altered and the gluteals are activated. Therefore there is a need to achieve a balance between muscles which get weak and those which get tight. The patient then is reprogrammed to move so as to minimise the muscular imbalance.



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In elderly patients, who are generally more prone to side-effects, particular caution should be exercised. If peptic ulcer or gastro-intestinal bleeding occurs during treatment with VOLTAREN, administration of the drug must cease immediately.

A slight reduction in haemoglobin has been observed in some patients during long-term therapy with VOLTAREN. On rare occasions, blood dyscrasias have been reported. It is advisable to perform blood counts, at intervals, in patients receiving long-term therapy.

**Use in Pregnancy:** Safety of diclofenac sodium in pregnancy has not been established; therefore VOLTAREN should not be used in pregnant women or those likely to become pregnant unless the expected benefits outweigh any potential risk.

**Use in Lactation:** Following oral administration of VOLTAREN to six lactating women, in doses of 50 mg twice daily for the first week after parturition, no unchanged drug could be identified in the milk. The detection limit was 10 ng/ml.

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**ADVERSE REACTIONS:** VOLTAREN is generally well tolerated. At the start of treatment, however, some patients may complain of gastro-intestinal symptoms (e.g. anorexia, nausea, epigastric pain or diarrhoea). These effects are usually mild and transient, and need not interfere with continuation of medication. Peptic ulcer or gastro-intestinal haemorrhage, has been reported during therapy with VOLTAREN. Usually these episodes occurred in patients with a history of such disorders, or who were receiving concomitant therapy with other drugs.

Occasionally, skin reactions such as drug rash and eczema, peripheral oedema or slightly raised serum transaminase levels have been observed. There have been isolated reports of anaphylactoid reactions. Central nervous system reactions in the form of headache and dizziness, tiredness, insomnia, or irritability may be experienced by some patients, but these are usually mild and transient. The occurrence of myoclonic encephalopathy has been described in two patients.

Blood dyscrasias (aplastic anaemia, agranulocytosis, leucopenia) have been encountered very rarely in association with the use of VOLTAREN.

A few cases of haemolytic anaemia, thrombocytopenia, reduction in haemoglobin levels and positive Coombs' test have also been reported. Some further unwanted effects which have rarely been observed are jaundice, hepatitis, renal failure and nephrotic syndrome. Isolated cases of erythema multiforme have been reported.

**DOSEAGE AND ADMINISTRATION:** Initial dosage is 75 to 150 mg daily, depending on the severity of the condition, given in 2 or 3 divided doses. For long-term therapy, 75 or 100 mg daily, in divided doses, is usually sufficient.

The tablets, being enteric-coated, should be swallowed whole.

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# SUBMISSION TO THE N.S.W. BRANCH, A.M.A.

One of the perennial issues at AAMM meetings has been the status of the musculoskeletal practitioner, both within the medical profession and in the general community. Discussions on the subject have ranged over questions of education and training, degrees of expertise, special services provided by practitioners of musculoskeletal medicine and the fees that such services should attract.

In 1980, a submission to the Benefits Review Committee recommended the establishment of a specific item number for manipulation undertaken by approved medical practitioners, who would be placed on a register if they had appropriate qualifications. Nothing came of this submission.

The current Committee has moved away from the concept of special fees for particular services such as manipulation. It considers that consultation for musculoskeletal conditions should attract the same fee as any other time-based consultation, as is the current method of remuneration.

It also considers that a special (higher) fee should derive for practitioners with accredited skills in musculoskeletal medicine and has recommended that the basis for this accreditation should be satisfaction of the requirements of the syllabus of the AAMM.

NSW members will be aware of a move by their branch council to reconsider the fee levels recommended by the AMA. The following is the submission that has been forwarded to the NSW Branch, AMA.

## SUBMISSION

### PREAMBLE

Musculoskeletal medicine is that branch of medical science concerned with the functions and disorders of the musculoskeletal system, including muscles, aponeuroses, ligaments, joints and bones of the axial and appendicular skeletons and those parts of the nervous system associated with them.

The Australian Association of Musculoskeletal Medicine (AAMM) represents a membership of about 350 qualified medical practitioners, principally general practitioners, who express an interest in musculoskeletal medicine.

These practitioners devote much or all of their professional time to patients with musculoskeletal problems, especially those disorders which are not serviced or are inadequately serviced by established specialties such as Rheumatology and Orthopaedic Surgery. The principal foci are non-surgical orthopaedic problems, troublesome and often poorly understood conditions such as "frozen shoulder", "tennis elbow", etc. and most particularly back pain, neck pain, headache and related referred pain problems.

### SUBMISSIONS

1. It is the impression of the AAMM that **musculoskeletal complaints are very common.**

There are no figures available for Australia, but it seems reasonable that the prevalence of musculoskeletal complaints should be similar to that in the USA for which figures are available. The Nuprin Pain Report (1) revealed that on 101 or more days during 1985, 5% of the population suffered headache, 9% backache, 5% muscle pain, and 10% suffered joint pains. These proportions do not include patients who suffered these complaints less frequently. Sporadic or incidental complaints were tabulated separately. The figure of 101 days represents one third of the entire year, and so the proportions quoted above are representative of the prevalence of chronic musculoskeletal complaints. Transposing these figures to Australia suggests that up to 25% of the population suffers chronic musculoskeletal complaints, and some 10% from back pain alone.

Other American figures are quoted in Appendix I.

2. It is the impression of the AAMM that **musculoskeletal complaints should be dealt with, at least in the first instance, by the general practitioner.**

It has been shown that the recovery rate from an episode of back pain is influenced significantly and beneficially by recourse to the most appropriate of a range of musculoskeletal treatment modalities ( 2 ).

The selection of the most appropriate therapy hinges on the quality of patient assessment and diagnosis and should not be determined by a predilection for a particular form of treatment.

Because musculoskeletal complaints can occur in association with diseases of other systems or may be mimicked by such diseases, musculoskeletal complaints are clearly best dealt with, at least initially, by a member of the medical profession and for first contact that means a general practitioner.

Appropriate management involves a knowledge of the whole range of treatment options and the application of the most appropriate modalities in the context of the patient's general health status and with particular reference to any other current medical treatment.

The AAMM perceives that there is a popular conception that musculoskeletal disorders are often effectively treated by "alternative" manipulative practitioners working completely outside the medical disciplines. Such conceptions are largely anecdotal and fail to account for the enormous problems of musculoskeletal pain in the community.

3. It is the impression of the AAMM that **management of patients with musculoskeletal problems is relatively time consuming.**

Assessment of any new presenting complaint can be time consuming, whether the complaint be related to the cardiovascular, neurological, musculoskeletal or any other system. However, the subtlety and complexity of many musculoskeletal disorders makes their assessment even more time consuming and certainly requires more time than many other problems commonly treated by general practitioners.

When further time is required for treatment of the problem, the total time of the patient's attendance can be quite long.

For these reasons, those practitioners who deal with musculoskeletal disorders will not have anything like the patient throughput of average general practitioners.

The current time scale suggested by the AMA in regard to Item 602, 0-15 minutes, Item 604, 15-30 minutes, and Item 606, 30-45 minutes does resolve this time factor consideration. The current MBS schedule of Item 5, 5-25 minutes, and Item 7, 25-45 minutes, penalises practitioners who are involved in longer than usual consultations.

## **RECOMMENDATIONS**

1. **The discipline of musculoskeletal medicine should be recognised as a legitimate branch of medical science.**

The AAMM considers that the time has arrived to recognise this growing discipline.

There is now a large body of scientific knowledge pertinent to musculoskeletal medicine and further research is constantly being reported and evaluated in the medical literature.

There are numerous techniques of patient assessment and special modalities of treatment based on this body of scientific knowledge. The appropriate application and performance of these



techniques of assessment and treatment comprise the special clinical skills of the musculoskeletal physician.

It has already been established that the incidence of musculoskeletal problems in the population, and therefore in general practice, is of the order of up to 25%. It is also recognised that present undergraduate training in this area of medicine is insufficient to equip practitioners with the range of skills required to provide the health care so frequently sought by patients with musculoskeletal complaints. However, the view that medical practitioners are not therefore the most appropriate group to deal with these problems is erroneous. The basic approach to musculoskeletal problems is the same as that for problems in any other system of the body and all medical graduates possess the ability to deal with problems at that level. By the acquisition of additional clinical skills pertinent to the specific and more complex problems, medical practitioners in this as in any other field of medicine become far and away the group best qualified to deal with the patients' problems.

There are already scores of doctors in each state who devote much or all of their professional time to musculoskeletal medicine. The future capacity of the medical profession to cope with musculoskeletal problems will depend on further increases in their numbers and in the knowledge and skills they possess. The discipline of musculoskeletal medicine is committed to meeting the perceived needs!

## **2. Recognition should be given to special expertise in Musculoskeletal Medicine.**

The AAMM is cognisant of the fact that this raises the issue of recognised standards. At present in Australia there are no registered qualifications in the discipline of musculoskeletal medicine.

The Association is concerned about this issue and has developed a syllabus delineating the special body of knowledge and clinical skills that make up the discipline (Appendix B).

The standards implied by this syllabus are those that the AAMM would recommend as appropriate for the registration of special expertise in this discipline.

It is understood that the objective assessment of these standards will be undertaken by academic bodies including tertiary institutions with interests in areas within the discipline, eg. physiology, neurology, pharmacology, radiology, etc.

Only practitioners satisfying such an assessment, or its equivalent, should be deemed as having special expertise in this field.

## **3. The time consuming nature of musculoskeletal assessment and management should be considered in relation to appropriate remuneration levels.**

The AAMM recommends that when remuneration levels are established, the time required for the assessment of a patient with complex musculoskeletal complaints should be taken into consideration.

As an example, an attendance requiring such assessment for back pain may take about 30 minutes, and an appropriate remuneration for such a consultation would be about \$50.

The AAMM considers that the current 602, 604 and 606 time scales are suitable, and should be maintained.

## **REFERENCES**

1. STERNBACK, R.A. *Survey of pain in the U.S.: the Nuprin Pain Report.* Clin.J.Pain 2:49-53, 1986.
2. FARRELL J.P., TWOMEY L.T. 1982 *Acute low back pain. A comparison of two conservative approaches.* Med J. Aust. 1: 160-164.

## APPENDIX I

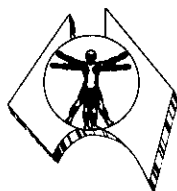
### ADDITIONAL FIGURES ON THE INCIDENCE OF LOW BACK PAIN

See page 50, AAMM Bulletin June, 1987.

## APPENDIX II

### A SYLLABUS OF MUSCULOSKELETAL MEDICINE

See pages 18-42 in this issue.



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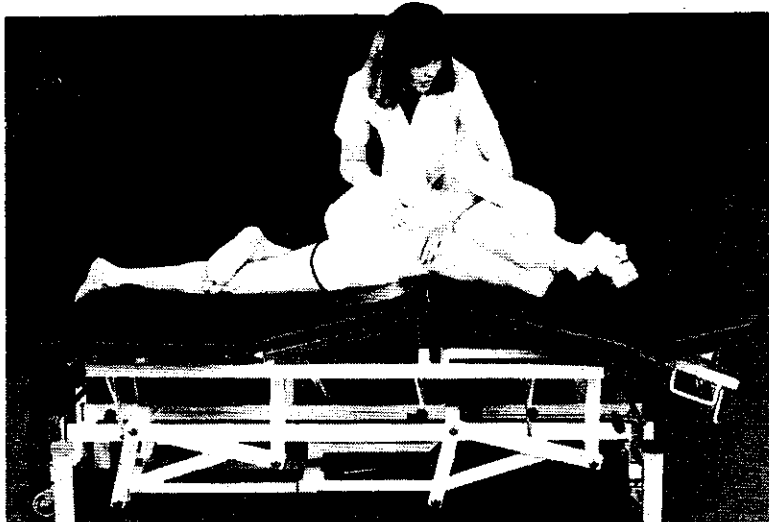
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## BOOK REVIEW

### **Clinical Anatomy of the Lumbar Spine**

by

Nikolai Bogduk  
Dip. Anat. B Sc (Med) MBBS PhD

Lance T. Twomey  
B App Sc (Hons) PhD

Churchill Livingstone, Melbourne, 1987

This book was written to collate the material considered fundamental to the understanding of the structure, function and common disorders of the lumbar spine. References to major earlier research papers and to many relevant contemporary papers are made, providing a comprehensive list for those interested students seeking to undertake research projects on the lumbar spine.

The first four chapters outline the structure of the individual components of the lumbar spine and Chapter 5 describes the lumbar spine as a whole. Chapter 6 summarises some of the basic principles of biomechanics, in preparation for the study of the movements of the lumbar spine in Chapter 7.

Chapter 8 describes the lumbar muscles in detail.

Chapters 9 and 10 deal with the nerves and blood supply of the lumbar spine.

Chapter 11 covers the embryology and development of the lumbar vertebrae and the changes of the spine with age are considered in Chapter 12. The theme through these chapters is that the lumbar spine changes and adapts throughout life.

Chapter 13 outlines the possible mechanisms of lumbar pain in relationship to the neurology of the lumbar spine, and provides an anatomical foundation for the appreciation of pathological conditions that can cause spinal pain.

Chapter 14 is concerned with pathological anatomy restricted to mechanical disorders, with a stated aim to provide a rational basis for the interpretation and treatment of a group of otherwise poorly understood conditions which account for the majority of presentations of low back pain.

This book goes far beyond what is generally taught in lumbar spine education: It provides a cornucopia of data that will induce the practitioner who is genuinely interested in musculoskeletal medicine to think through his or her perceived rationale of diagnosis, management and prophylaxis. It implores the practitioner to discard any dogma and to replace it with principles that have a scientific background.

Clinical Anatomy of the Lumbar Spine is a well written comprehensive document that is easy to read and is essential reading for anyone interested in musculoskeletal medicine. It is well priced at \$29.50. 166 Pages.

**D. Vivian**

# The Crook Back Book "An Owners Manual"

by

James Thompson  
and  
Grant P. Cunningham

published privately, Urunga, NSW, 1987

This compact handbook of exercises for "owners" of spinal pain describes various active range of movement exercises for the spine in sitting, standing and lying positions. The authors' confident statement "if you do these exercises, you will suffer less pain" is supported only by patchy anecdotes, scattered truisms and a highly simplistic approach to the pathophysiology of spinal pain.

The exercises described are non-specific ranging techniques and are accompanied by large space-filling illustrations. The exercises described in the sitting position are little different from those described in standing, while the lying exercises are presented as advanced therapy. No attempt is made to explain even simple concepts of spinal mechanics, or to describe satisfactory sitting or standing posture, or to advise safe techniques of lifting and carrying. In this regard, the manual fails to satisfy its claims of a holistic approach to spinal pain. The illustrations of subjects performing truncal flexion and extension exercises indicate spinal range of movement suggest of hypermobility and are essentially misleading.

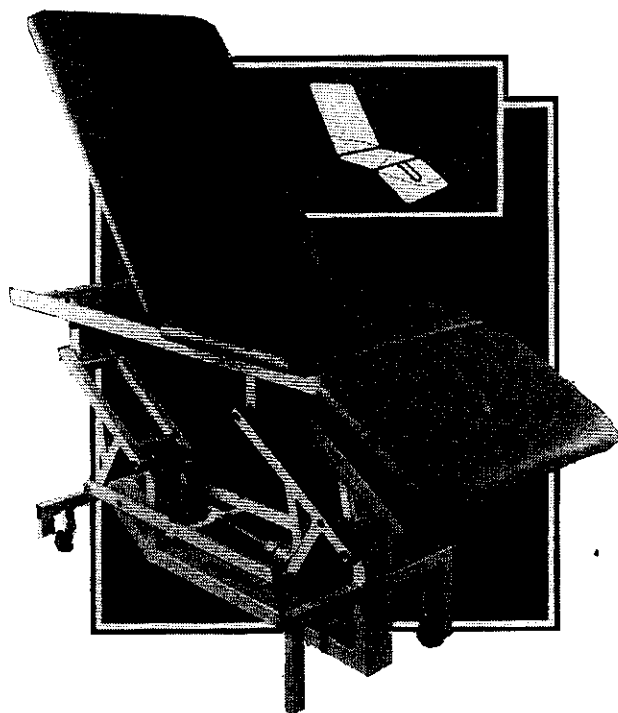
Our current knowledge of the rationale and efficacy of therapeutic spinal exercises is very limited. To propose simple movement exercises as panacea is facile and myopic, dogma rather than science.

Is this a book for your crook back, or a crook book about backs? Judge for yourself.

63 pages. \$9.95.

P. Funnell

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## MINUTES OF THE MEETING OF THE GENERAL ASSEMBLY OF THE INTERNATIONAL FEDERATION OF MANUAL MEDICINE held on Saturday, June 20th, 1987 in London.

The following were present:

<b>Austria:</b>	Dr. Tilscher Dr. Hanna Dr. Lorincz	<b>Luxembourg:</b>	Dr. Palgen
<b>Belgium:</b>	Dr. Depoorter Dr. de Nayer	<b>North America:</b>	Dr. Beal
<b>CSSR:</b>	Dr. Janda	<b>Sweden:</b>	Dr. Silverstolpe
<b>Denmark:</b>	Dr. Fossgreen	<b>Switzerland:</b>	Dr. Hemborg
<b>Finland:</b>	Dr. Rekola		Dr. Baumgartner
<b>FRG:</b>	Dr. Neumann Dr. Wolff	<b>UK:</b>	Dr. Dvorak
<b>Holland:</b>	Dr. Vortman		Dr. Huguenin
<b>Italy:</b>	Dr. Colombo Dr. Radaelli Dr. Leuci Dr. Combi		Dr. Burn
			Dr. Carson
			Dr. Paterson

1. The President, Dr. Depoorter, expressed his gratitude to Dr. Burn and Dr. Paterson for the organisation of the general assembly. He welcomed the delegates from 14 different countries.

### 2. The Plenipotentiaries

The treasurer, Dr. Schmid, noted that the following nations didn't pay until June 18th 1987 and therefore no delegates of these nations are allowed to vote: Australia, CSSR, Holland, Poland, Bulgaria, Hungary.

The following delegates were nominated as plenipotentiaries of the national associations: Austria: Dr. Tilscher, Belgium: Dr. de Nayer, Denmark: Dr. Fossgreen, Finland: Dr. Rekola, France: Dr. Palgen, Sweden: Dr. Hemborg, Switzerland: Dr. Huguenin, North America: Dr. Beal, UK: Dr. Paterson.

3. Apologies for absence: Apologies are received from the association of France and Spain.
4. Minutes of the General assembly in Madrid: The minutes of the last meeting were read in French and were approved as being correct.
5. Matters arising from the minutes: no discussion.
6. The President's Report: The President, Dr. Depoorter, presented his written report, (enclosed with these minutes) which was unanimously accepted.
7. The Secretary-General's Report: The Secretary-General, Dr. Baumgartner, presented his written report (enclosed with these minutes), which was unanimously accepted. A short discussion about the future of the English Journal of Manual Medicine came to the conclusion, that all English

speaking members should subscribe to it and that the subscription of 2000 copies would be necessary until next year, otherwise the journal could no longer be issued by the publishers.

8. The Treasurer's Report: The Treasurer, Dr. Schmid, presented his written report (which is enclosed with these minutes). He informed the delegates about the excess of expenditures over income of Swiss francs 4,441.-. The assets are now Swiss francs 47,591.-. The two auditors, Dr. Johannson and Dr. Paterson suggested to accept the treasurer's report and the vote was unanimously in favour.

Dr. Burn proposed, seconded by Denmark, to elect Dr. Johannson and Dr. Paterson as auditors for another year. This was unanimously accepted.

9. Report of the chairman of the Scientific Advisory Committee: The president of the SAC, Dr. Janda, reported on the meeting of the SAC, held in London this morning. He pointed out the coming publication of the first edition of a glossary of terms in Manual Medicine in the English and German edition of Manual Medicine.

This work will continue as many other terms need to be defined. He reported about the task of the SAC to define functional syndromes as completion of the WHO-Diagnostic list. The third task of the SAC is the co-ordination of the scientific work.

The president, Dr. Depoorter, thanked Dr. Janda for his work. Dr. Fossgreen proposed, seconded by England, that travel expenses of the president of the SAC should be paid by the FIMM, if the national association of the president of SAC does not reimburse them.

10. Application for membership: None.

11. The 9th International congress in London 1989: Dr. Paterson informed the delegates about the planned plenary session to inform the general medical profession about what we are doing. A second part of the program will be directed papers about sacro-iliac joint, musculo-energythechnic and biomechanics. Dr. Paterson informed about the general social program, organised for Saturday.

Dr. Carson asked about a spanish translation and got the answer from Dr. Paterson, that this could be organised if a large attendance of Spanish people could be expected. Dr. Burn orientated about the observer status paying full fee and not being allowed to speak, that would include also the physiotherapists. Dr. Carson informed the delegates, that this must be resolved by the general assembly as it would be a change of the traditional politics.

The proposal from Dr. Burn was seconded by Switzerland and received 10 votes, two against and one abstained.

12. The 10th International congress in 1992: The president, Dr. Depoorter, proposed Brussels as place of the congress 1992, seconded by Switzerland. This was unanimously accepted.

Dr. Tilscher reminded the delegates that also Vienna could become a place of congress in the future, the same did Dr. Fossgreen about Copenhagen.

13. Date and place of next meeting: Dr. de Nayer proposed to hold the next meeting in Brussels, probably in June 1988, seconded by UK and this was resolved with 12 votes.

14. The Citizen Ambassador Program: Dr. Baumgartner informed the delegates about the question of the citizen ambassador program "people to people" for our recommendation of a professional to serve as leader of delegation of European osteopathic physicians to the Peoples Republic of China (letter included).

Dr. Dvorak informed the delegates that he is receiving the yearly report about the medical program from "people to people", who are organising one program each year to develop the medical situation

for instance in Russia, Israel or Asia.

Dr. Depoorter asked Dr. Beal to give us at the next general assembly more information about this organisation and suggested to speak at the general assembly of 1987 again about this invitation, as the delegates must discuss this before with their national associations.

15. Waghemacker Prize: Dr. Dvorak has written in December 5th 1986 to the FIMM executives and all national presidents and secretaries about his proposal to form a foundation for an award of the FIMM scientific work. An award of, for example \$3,000 - \$5,000, given at the international congress of FIMM every third year, could attract many researchers to submit their papers. For instance, the Volvo awards got more than 45 papers.

The award could be announced in the spine related journals of Spine, Journal of Orthopaedic Research, Journal of Biomechanics, Journal for Joint and Bone Surgery. The publication of this FIMM award, free of cost, would be an excellent form of publicity for FIMM and the next international congress.

Dr. Dvorak would be willing to write rules of such a possible foundation. The money could be raised by a yearly contribution of 200 francs by each national association.

Austria, Sweden and UK and also Switzerland answered to this proposal and are ready to support this award also financially. In the discussion Dr. Fossgreen also supports this proposal.

Dr. Depoorter proposes to delay a decision about the FIMM-Waghemacker prize until the general assembly of the next year and to ask Dr. Dvorak to send the different nations written rules of a possible foundation.

He thinks, that this foundation should be better discussed with the national associations as it will have financial consequences, despite the missed publicity for FIMM and for the next congress in the world wide known journals.

16. Any other business: There were no other items brought forward and the meeting concluded with the expressions of thanks to the President by Dr. Burn.

London, June 20, 1987.

**H. Baumgartner**  
**Secretary-General**

## **THE PRESIDENT'S REPORT**

This is the first general assembly since the Madrid Congress in 1986, where we were so warmly received by the Spanish Society of Manual Medicine and by Dr. Roberto Pastrana. I welcome you all.

These annual general assemblies are both very useful, and agreeable. They are the occasion to meet old friends, to strengthen the links that unite us all, to discuss problems of the Federation, to exchange ideas and to communicate to one another the results of our work.

In these last months, I have had, as President, many personal contacts with groups teaching Manual Medicine, many contacts by telephone with those responsible for Manual Medicine and a massive correspondence. I received several invitations to travel abroad. I have, sadly, only been able to accept a few.

The experiences of this last year have given me some thoughts that I'd like to put to you today.

In the framework of FIMM there are certain obvious thrusts:

- 1) The general desire of the different associations in FIMM to contribute to the promotion and development of Manual Medicine World Wide.
- 2) The strong desire to co-operate between the different countries in the field of Manual Medicine.
- 3) The great research effort made by many in several areas.
  - In the study of the scientific basis of manual medicine.
  - In the interpretation of the clinical signs found where is a dysfunction of the locomotor system.
  - In the physiological explanation of the mechanical and reflex actions of manipulation and of other treatments used in Manual Medicine.
- 4) And finally, the endeavour to formulate a single international vocabulary and uniform teaching of methods of examination and treatment.

We are an International Federation of 21 countries. They differ greatly from one another. These differences are the result of a variation of temperament of thought and of approach.

These differences offer immense possibilities, but are also a great barrier. The same issue is often approached and handled in very different ways. It is because of this that uniformity becomes a problem. A uniform and single vocabulary is certainly desirable but difficult to achieve: where one doesn't think in the same way, it is very difficult to speak the same language. Nevertheless, it is this daunting task that the scientific council of FIMM has addressed for many years. It's hard work and progress is slow. The basic ideas are so different and yet this uniformity of language is most important. As to the uniform examination and treatment, is this desirable? The difference of techniques between various countries are such that trying to achieve uniformity may risk a single concept being imposed, which would dominate and obliterate the others. This would be a sad deprivation.

It is for this reason that I believe that we must, attempting to establish a single vocabulary, at the same time preserve the diversity of technique. On such a basis, discussion would be both possible and fruitful.

We have the responsibility of ensuring the FIMM makes progress.

This implies:

1) **Mutual Understanding**

To understand one another it is essential to communicate, to listen to others, to try and grasp their train of thought and understand what motivates their particular approach.

2) **Tolerance**

If we can be self critical we can be tolerant of others. We must accept other people's point of view. It is far from desirable to try to impose at whatever cost, one's own way of thinking and doing.

3) **Collaboration**

So that FIMM may develop and, indeed, flourish, all its members must work together. We must all work together and also ensure that no individual's ambition should influence FIMM for personal advantage.

And finally, it is with pleasure that I thank all those who through their work and good will have helped our Federation. A special word of thanks to our Secretary-General, Dr. H. Baumgartner, who takes so much to heart a burden which is at times far from easy. And of course last but not least, I thank our friends, Dr's L. Burn and J. K. Paterson, who have committed themselves with such energy, perseverance and such an outstanding organisational sense, to the task of organising for us, an International Congress at London in 1989 of high calibre.

**Dr. Agnel-Edgar Depoorter**  
**President FIMM,**  
**20th June, 1987.**



## **REPORT OF THE SECRETARY-GENERAL FOR 1986/1987**

In the contrary to the year before is the year after the International Congress usually quieter for the General Secretary. This is also the case for that past year, after that wonderful Congress in Madrid.

The Bulgarian Society for Manual Medicine has been told the admission officially.

The General Secretary did not get further information about the application of the Portuguese Society.

A demand to the President of the Norwegian Society on the activities in Norway with the remark that the Society should send an official notice of withdrawal has not been answered yet.

The General Secretary got new member registers from the Swedish and the North American Societies, they will be put into the computer address administration. Each National Society is kindly asked to send every year their new member register to the General Secretary. So we can provide at any time a complete list to the organizer of the next International Congress. It is the responsibility of each National Society to invite their members themselves to the Congress.

Presently, the FIMM has registered 5,931 members from 21 nations.

The Documentation Centre of the FIMM (lead by Dr. V. Dvorak, Obere Bahnhofstr. 10, CH7402 Bonaduz) contains these days 926 original papers. 197 new papers could be registered during the past year, they were divided regularly into the groups of anatomy, biomechanics, diagnostic, clinical, radiology, therapy and pathology. This centre is available for all members of the FIMM.

On the occasion of the last delegate meeting we noticed, that in former times the Scandinavian Societies had requested urgently the English Edition of Manual Medicine. A number of 16,000 subscriptions were prospected, and although Dr. Neumann invited in Madrid all english speaking societies to subscribe and to provide papers deserving publication to the Journal, the subscriptions increased only from 211 to 336. Only with great difficulties is it possible to print four numbers per year. Many authors are prepared to publish in this journal only on condition that it was referred in Current-Concepts. But this is not possible without a regular issue. Springer will continue one more year, but not longer if not a minimum of 2000 subscriptions is reached. It is of greatest importance for the Manual Medicine that this Journal keeps existing furthermore.

Only from few countries the General Secretary got information which could be place in the FIMM News. This part of information is important for the togetherness of the FIMM. Here too, it is all the same: the General Secretary can publish only what he gets.

The inquiry about an International FIMM award and a delegation leader for the Citizen Ambassador Program "people to people" has risen circular letters to the members of FIMM. During this meeting we will discuss both topics.

Thanks to the detailed information of Prof. Maigne the General Secretary could be helpful for the Danish Society in answering to the Syndicat of Osteopathic Medicine of France.

**London, June 20, 1987.**

**H. Baumgartner,  
Secretary-General**

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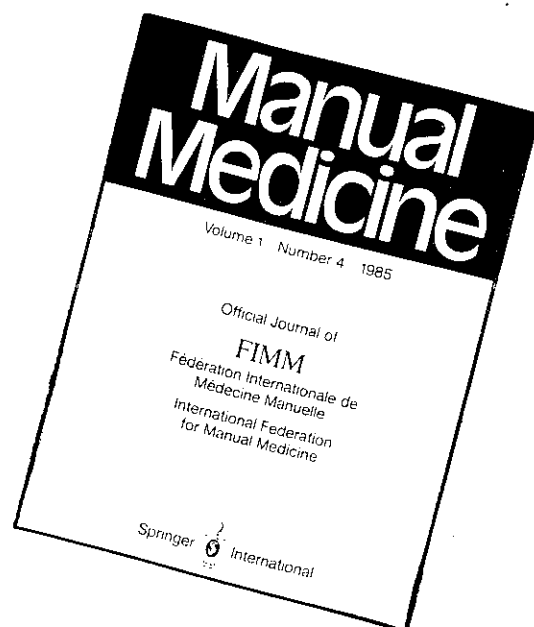
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# **MINUTES OF THE MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE**

Dr. Depoorter proposes to formulate internal regulations with a fixed number of members.

Until now, the president of the FIMM elected the members of the Scientific Advisory Committee.

The proposal of the internal regulations shall be sent to the SAC. Before the next meeting, Dr. Tilscher would like to have a list of items, so that he can prepare the subjects for discussion.

Dr. Janda, explains that it would be the decision of the Scientific Committee which terms should be discussed.

Today we should discuss the terminology which Mr. Greenman and Mr. Janda worked out together and presented to the SAC. The discussion made it obvious, that various members of the SAC did not receive those records, so that the discussion had to be terminated. The general secretary is responsible for those records to be sent to the SAC for their use.

Correction recommendations have to be sent back to the general secretary till September 9th 1987. Afterwards he has to send it back to the SAC for their statement.

It should then be possible to publish the first part of terms in the English and German MM.

Dr. Janda prepares another part of terms for a discussion.

As soon as the print is present, Dr. Wolff would like to have copies for the teachers of the different national societies.

Dr. Janda suggests, that the WHO proposal for the classification of the diagnoses should be discussed.

The WHO considers only histological, degenerative, morphological and biochemical disturbances as a basis. The dysfunction of joints, tissue and muscles are not considered. It is only defined as non-specific low back pain.

Dr. Tilscher thinks that it is absolutely necessary to put the functional disturbance into the diagnoses-code because the diagnoses have to be put into the computer and also the insurances are accepting diagnoses-codes only.

The result of the debate is that one should get in touch with WHO in Geneva, to learn about the condition set, in order to complete the diagnoses-codes.

Mr. Hemborg will get in touch with Mr. Einer Hellander, he is the representative of WHO in Geneva.

The assembly resolves, that Mr. Tilscher sends his own list and the Orthopadische Praxis to Dr. Baumgartner who transmits it to the Scientific Committee for their use. At the next meeting of the SAC in September 1987 we shall discuss it.

Next meeting: September 1988 in Brussels.

**London, June 20, 1987.**

**H. Baumgartner  
Secretary General**

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The picture below was taken at the Association's 16th annual conference, last year. The occasion was intensely moving with a certain spiritual quality. The man with raised hands was speaking and some of the others were listening to what he was saying.



- Was the speaker:
- a) *exhorting the others to open their minds?*
  - b) *proclaiming the great truths of man's nature?*
  - c) *explaining the profound mysteries of incarnation?*
  - d) *praying for deliverance from ignorance?*
  - e) *boring the audience witless?*
  - f) *all of the above.*

Members should send their responses to the Hon. Sec., who will forward them to a judging panel chaired by the Bishop of Newcastle. The winning entry will be passed on to the F.I.M.M. Committee for consideration of the next Waghemacker Prize.

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